

CRPL-F 253 PART A

OCT 15 1965

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PART A
IONOSPHERIC DATA

ISSUED
SEPTEMBER 1965

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

OCT 15 1965

NOTICE

Effective October 11, 1965, the Central Radio Propagation Laboratory was transferred from the National Bureau of Standards to the new Environmental Science Services Administration (ESSA). At the same time the name CRPL was changed to INSTITUTE FOR TELECOMMUNICATION SCIENCES AND AERONOMY (ITSA) to reflect the expanded scope of its responsibilities. The monthly bulletins "Ionospheric Data" (CRPL-F series, Part A) and "Solar-Geophysical Data" (CRPL-F series, Part B) will be continued under the new ITSA program. Communications concerning the "Ionospheric Data" series should be addressed to:

Prediction Services Section
Ionospheric Telecommunication Laboratory
Institute for Telecommunication Sciences and Aeronomy
Environmental Science Services Administration
Boulder, Colorado 80301

IONOSPHERIC DATA

The CRPL-F series bulletins are issued as part of the responsibility of the Institute for Telecommunication Sciences and Aeronomy (formerly Central Radio Propagation Laboratory) of ESSA for the distribution of ionospheric and related geophysical data. They represent a variety of data collected by ITSA (CRPL) in the course of its research and service activities. Through the CRPL-F series, as part of the general exchange of scientific information, these data are made available for use by others in research on radio propagation and the ionosphere, and in other geophysical applications.

In "Ionospheric Data" (CRPL-F series, Part A) tables of monthly median values of vertical incidence ionospheric data are presented accompanied by graphs of critical frequencies and $M(3000)F_2$. The tables include the number of values entering into the median determination (count). When available, the upper and lower quartile values (indicated by UQ and LQ) are listed for foF_2 , foF_1 , $foEs$, $M(3000)F_2$, $h'F_2$ and $h'F$. Space limitations do not permit inclusion of quartile values for the other characteristics. The tables are prepared by machine methods and the graphs are plotted automatically.

The tables and graphs present the ionospheric data as received from the originating laboratory. Responsibility for the accuracy and reliability of the data rests entirely with the originator. Medians of data for the U.S. stations are computed in accordance with the recommendations of the World-Wide Soundings Committee.

Data will appear in the "Ionospheric Data" only when the complete daily hourly tabulations have been received. In general, priority of publication is given to the most current data. Publication of data

CRPL-F 253
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

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30 Sept. 1965

IONOSPHERIC DATA

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IONOSPHERIC DATA

The CRPL-F series bulletins are issued as part of the responsibility of the Central Radio Propagation Laboratory for the exchange and distribution of ionospheric and related geophysical data. Part A, "Ionospheric Data," and Part B, "Solar-Geophysical Data," of the CRPL-F series present a variety of data collected by CRPL in the course of its research and service activities. Through the CRPL-F series, as part of the general exchange of scientific information, these data are made available for use by others in research on radio propagation and the ionosphere, and in other geophysical applications.

In the CRPL-F series, Part A, tables of monthly median values of vertical-incidence ionospheric data are presented accompanied by graphs of critical frequencies and $M(3000)F_2$. The tables include the number of values entering into the median determination (count). When available, the upper and lower quartile values (indicated by UQ and LQ) are listed for f_oF_2 , f_oF_1 , f_oE_s , $M(3000)F_2$, $h'F_2$ and $h'F$. Space limitations do not permit inclusion of quartile values for the other characteristics. The tables are prepared by machine methods and the graphs are plotted automatically.

The tables and graphs present the ionospheric data as received from the originating laboratory. Responsibility for the accuracy and reliability of the data rests entirely with the originator. Medians of data for the U.S. stations are computed by CRPL in accordance with the recommendations of the World-Wide Soundings Committee.

Data will appear in the F-series, Part A, only when the complete daily-hourly tabulations have been received by the CRPL or the World Data Center A for Airglow and Ionosphere. In general, priority of publication is given to the most current data. Data received too long after the month of observation may experience an indefinitely prolonged delay before finding space in the F series, Part A.

Information on symbols, terminology and conventions may be found in the "URSI Handbook of Ionogram Interpretation and Reduction of the World-Wide Soundings Committee," edited by W. R. Piggott and K. Rawer (Elsevier, 1961), which supersedes previous documents. A list of symbols is available from CRPL on request.

Units and Abbreviations of Ionospheric Data Tables

f_oF_2 , f_oE_s - - -	Tenths of a megacycle	MED -	Median
f_oF_1 , f_oE - - -	Hundredths of a megacycle	CNT -	Count
$h'F_2$, $h'F$, $h'E$ -	Kilometers	UQ -	Upper Quartile
$M(3000)F_2$ - - -	Hundredths	LQ -	Lower Quartile

Key to Points of Ionospheric Data Graphs

foF2: x foE : o M(3000)F2 : ◇
foF1: A foEs: +

< Less-than value indicated. > Greater-than value indicated.
- - - Interpolated value indicated.

The following table contains the latest available information on twelve-month smoothed average of observed Zurich relative sunspot numbers, beginning with the minimum of April 1954. Final numbers are listed through June 1964, the succeeding values being based on provisional data.

Smoothed Observed Zurich Relative Sunspot Number

[illegible]

ERRATUM

CRPL-F242, p. 21, Table for Dourbes, March 1964, h'E and h'F should read as follows:

h'E 24	MED	D E 133 121 121 115 115 115 116 117 118 120										U A D E 12 L 126.131						
	CNT	21 26 27 25 26 27 26 23 24 25										25 22 17						
h'F	MED	272 285 285 270	268 255 250 232	230 210 212 210	215 225 230 230	240 248 240	240	240	250	270	280							
	CNT	28 28 28 28	28 26 26 26	27 23 24 25	24 21 23 24	26 26 27	26	26	27	28	28							
16																		
CHAR.	HR.	00 01 02 03	04 05 06 07	08 09 10 11	12 13 14 15	16 17 18 19	20 21 22 23											

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

THE IONOSPHERIC DATA PRESENTED IN THE 100 TABLES AND GRAPHS OF THIS ISSUE WERE ASSEMBLED BY THE CENTRAL RADIO PROPAGATION LABORATORY FOR ANALYSIS, CORRELATION, AND DISTRIBUTION. THE FOLLOWING ARE THE SOURCES OF DATA.

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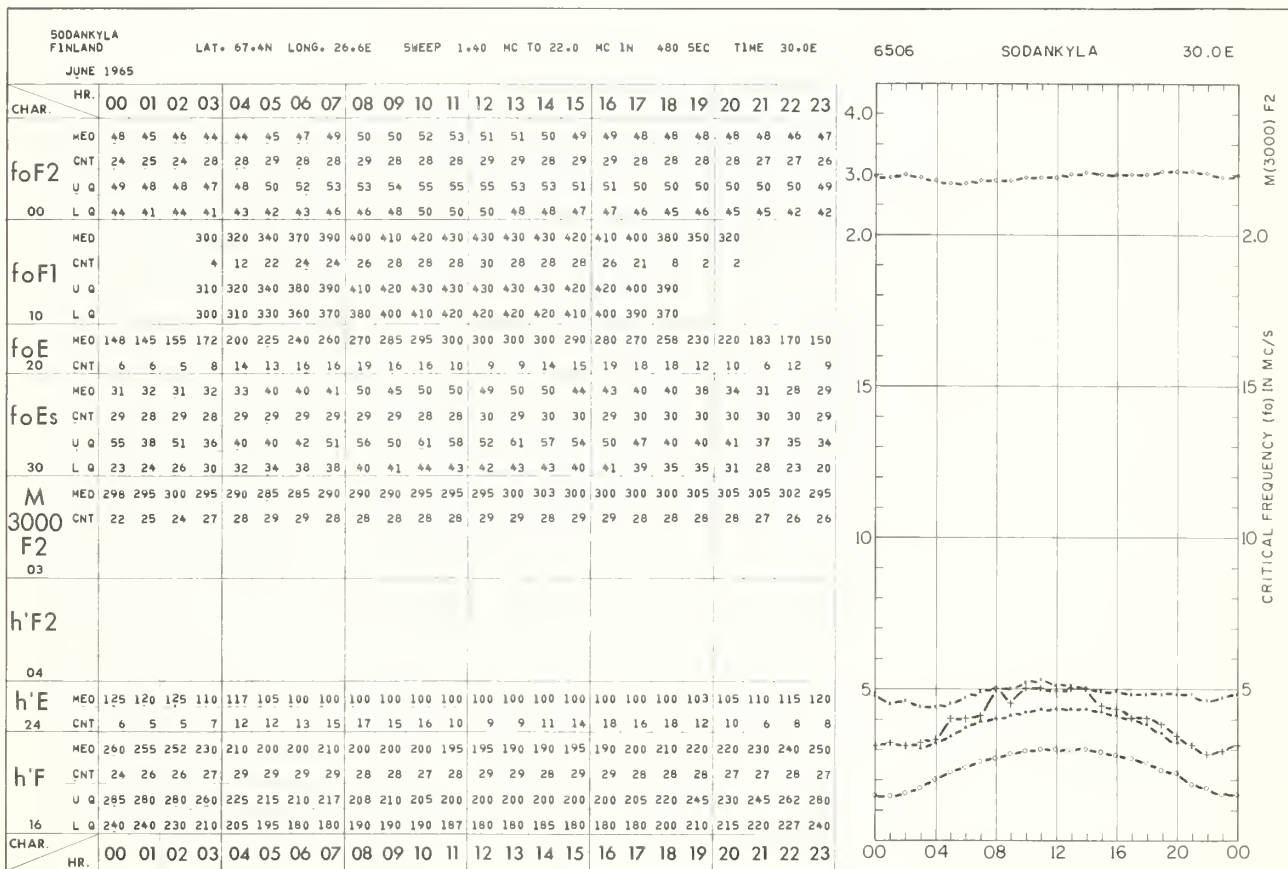
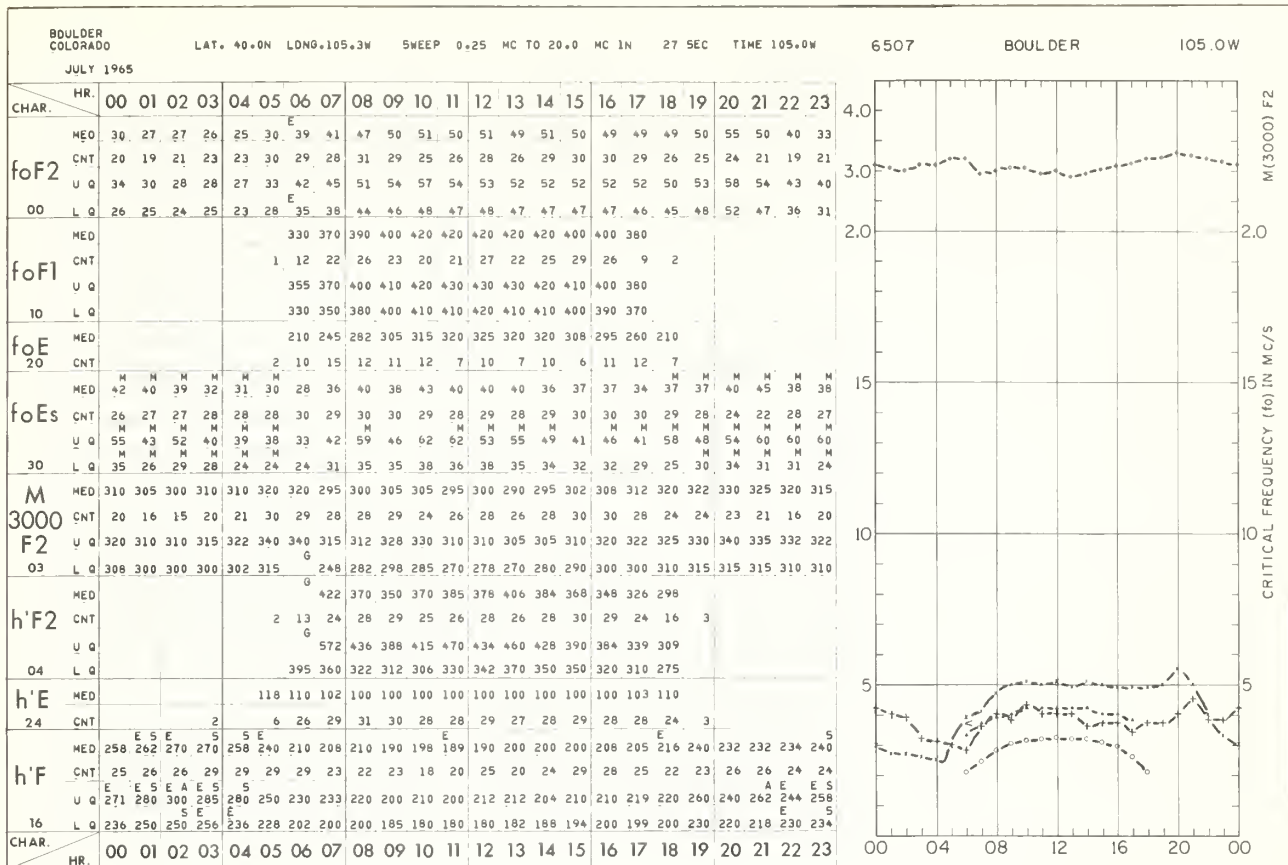
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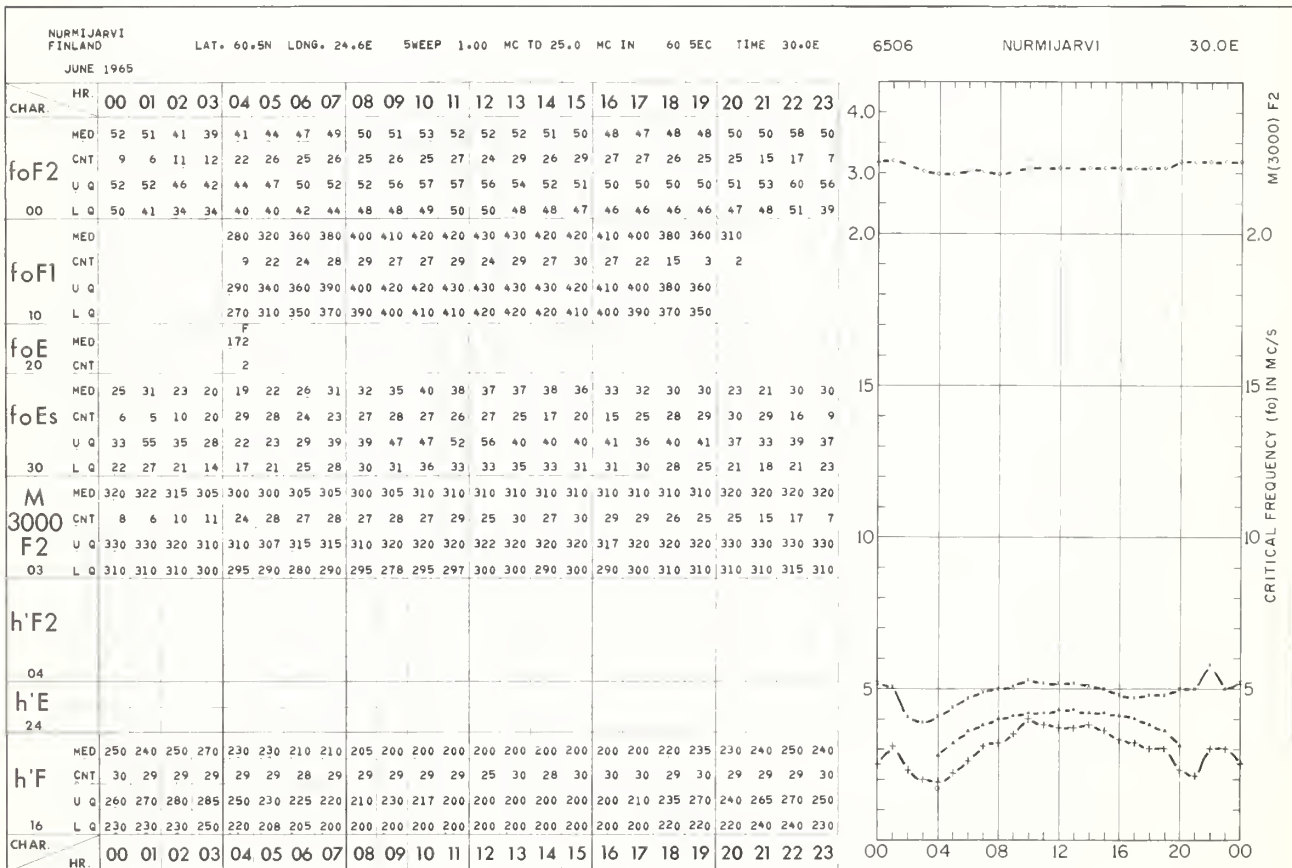
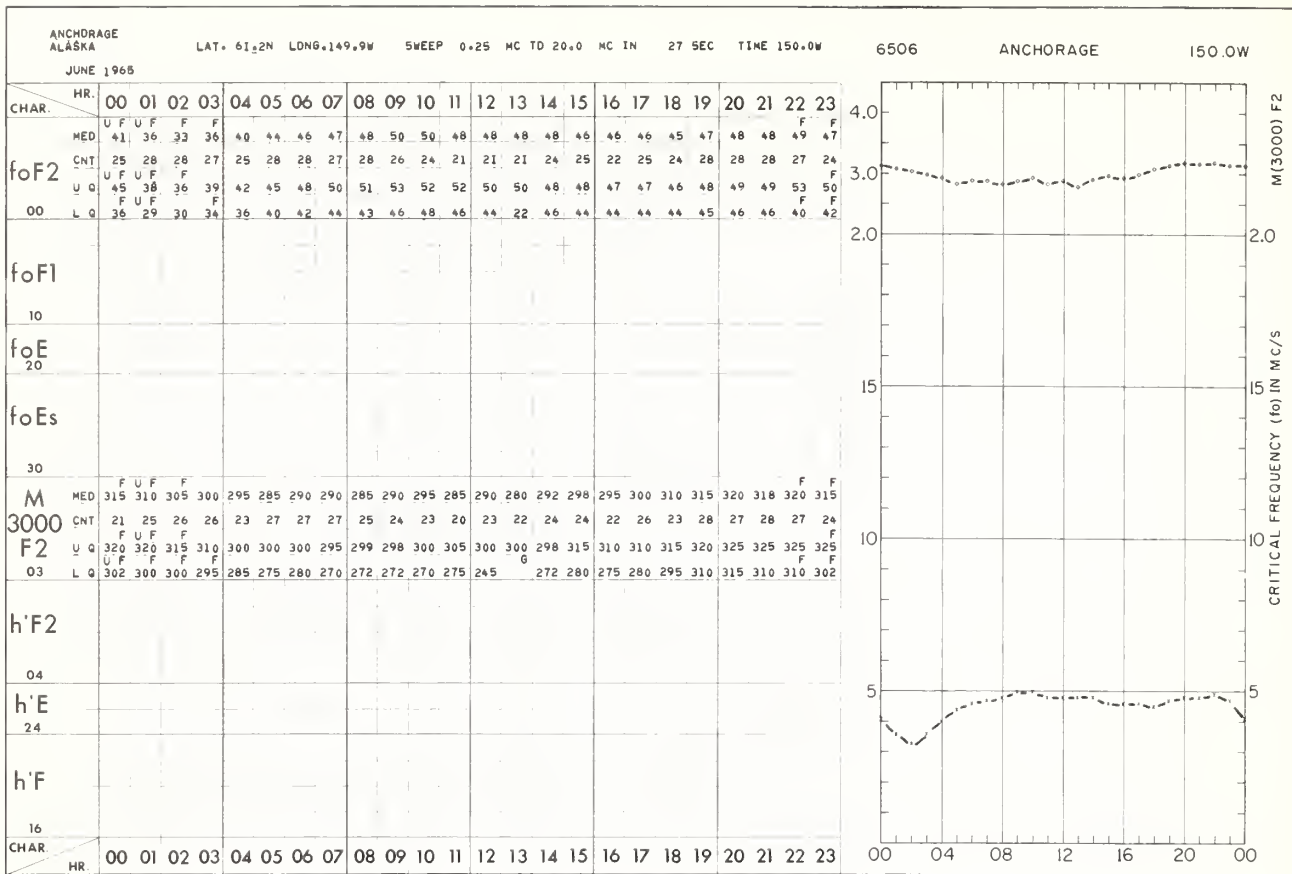
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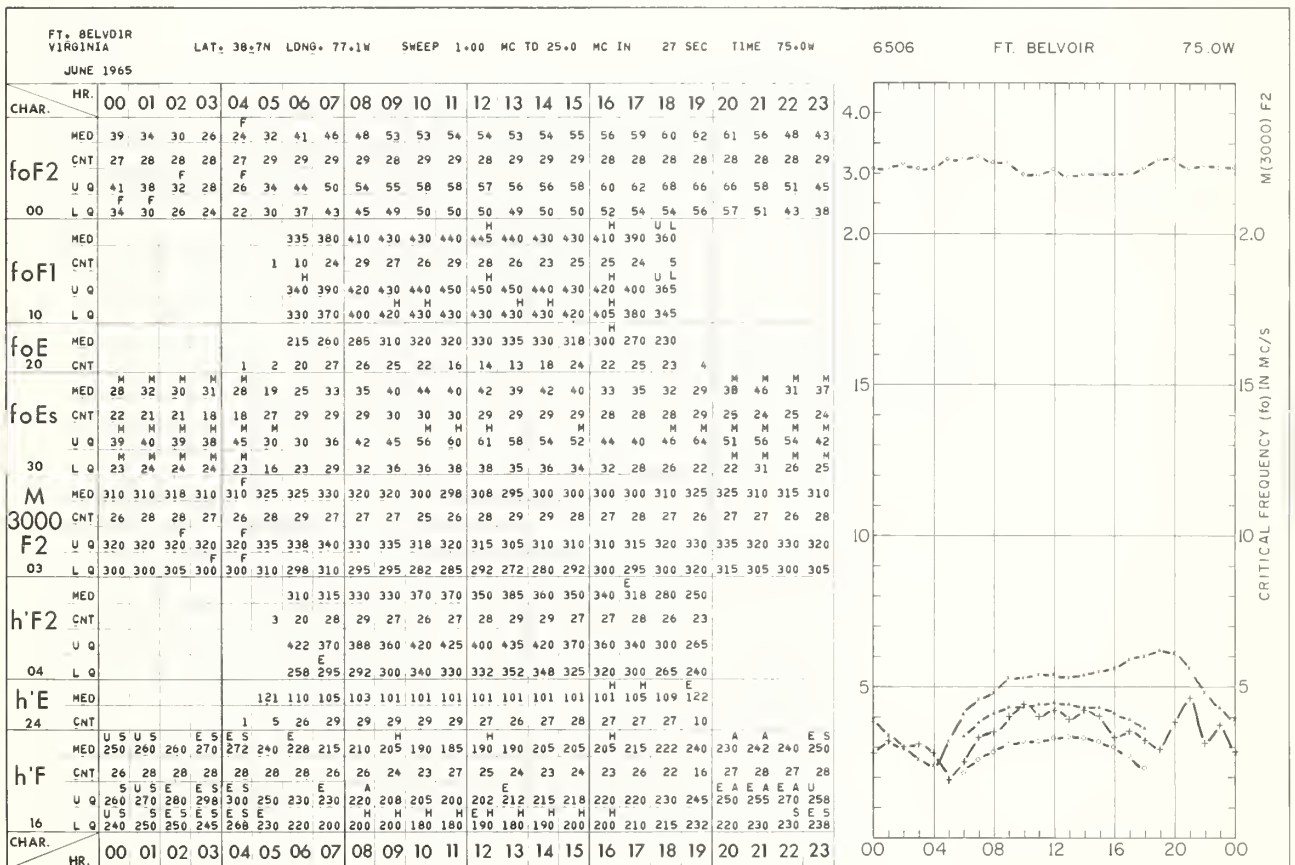
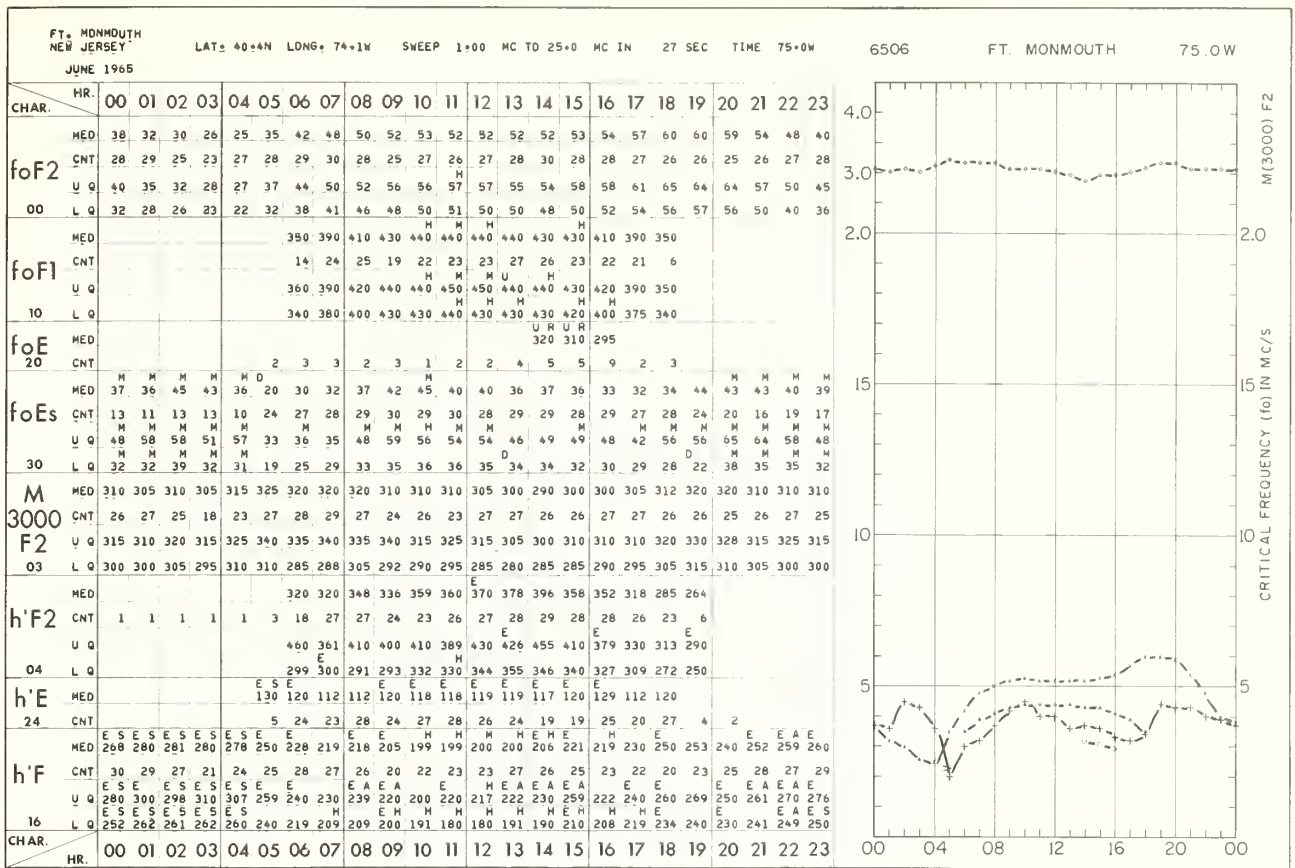
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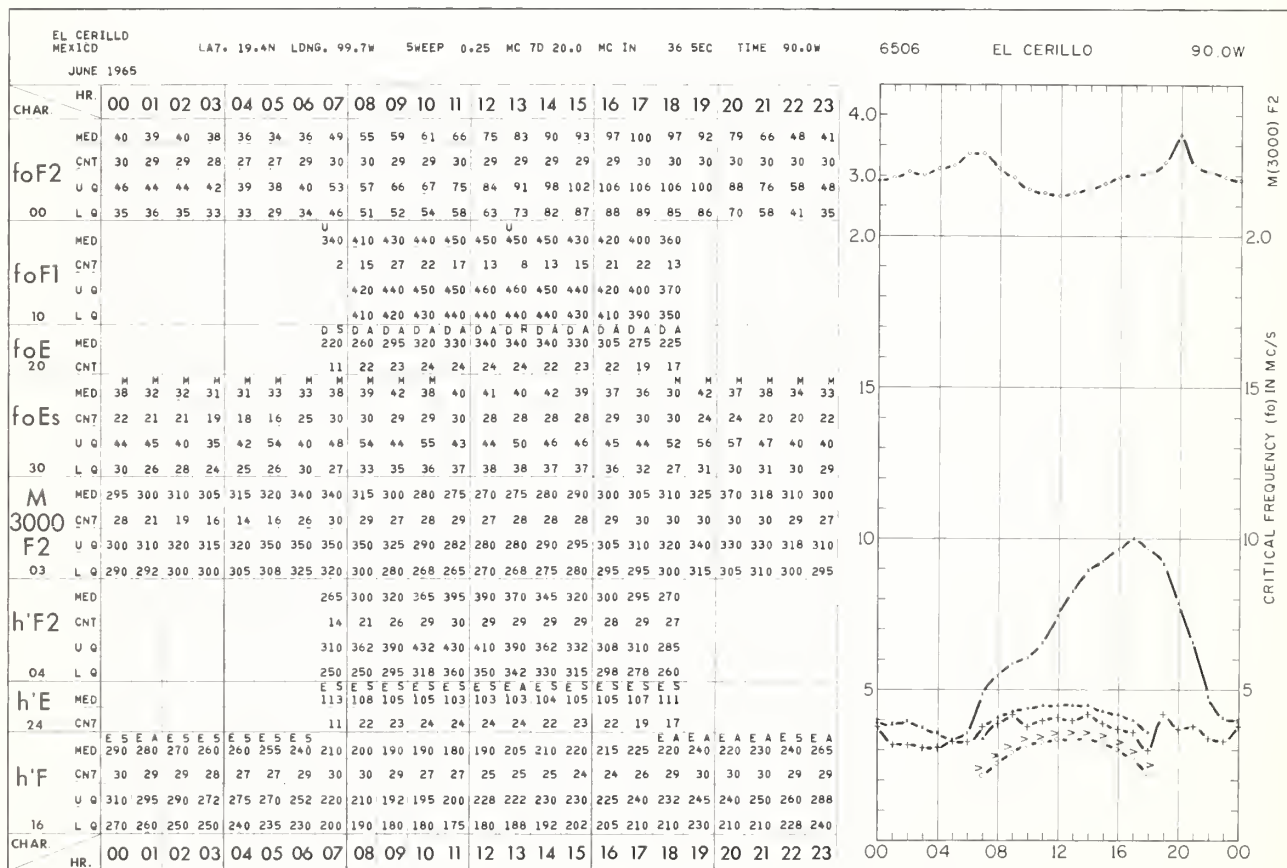
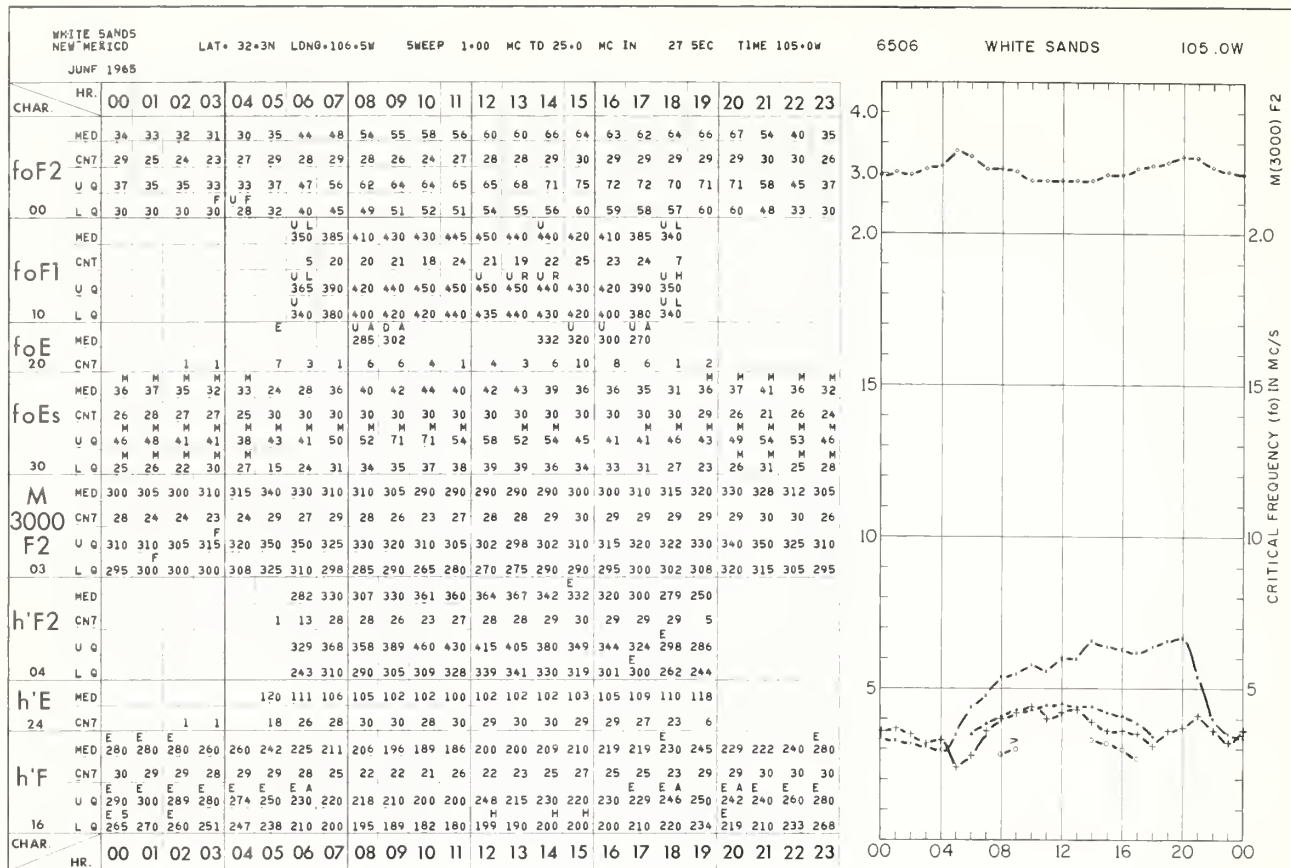
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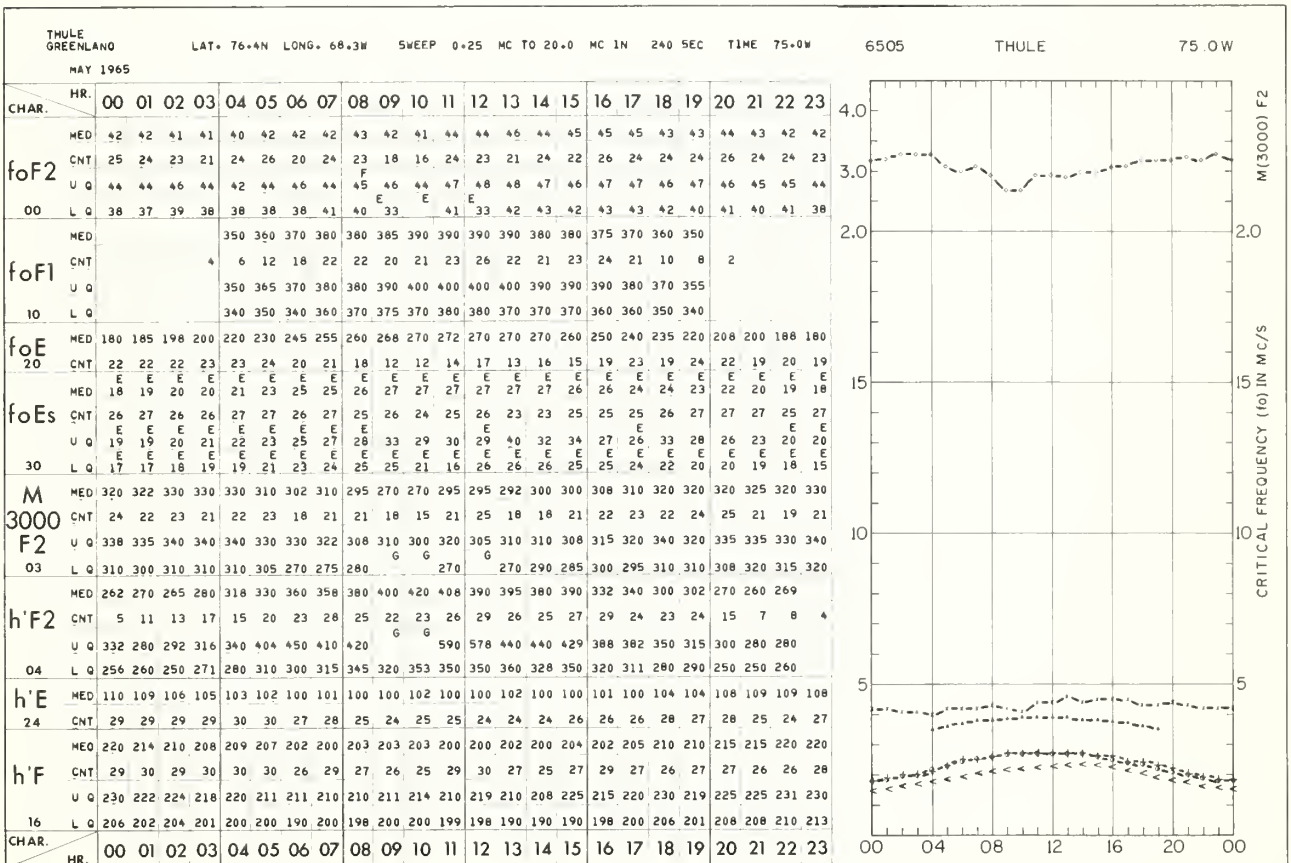
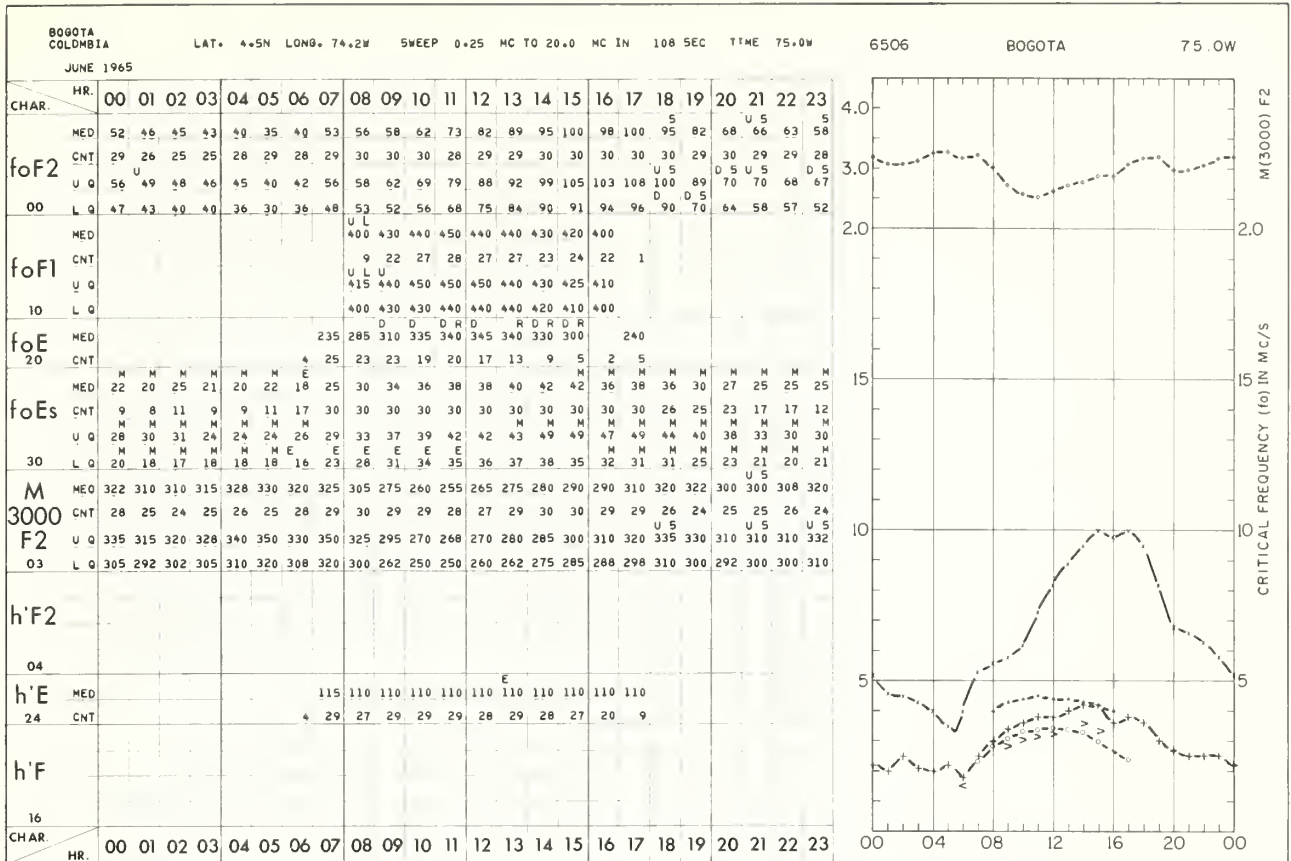
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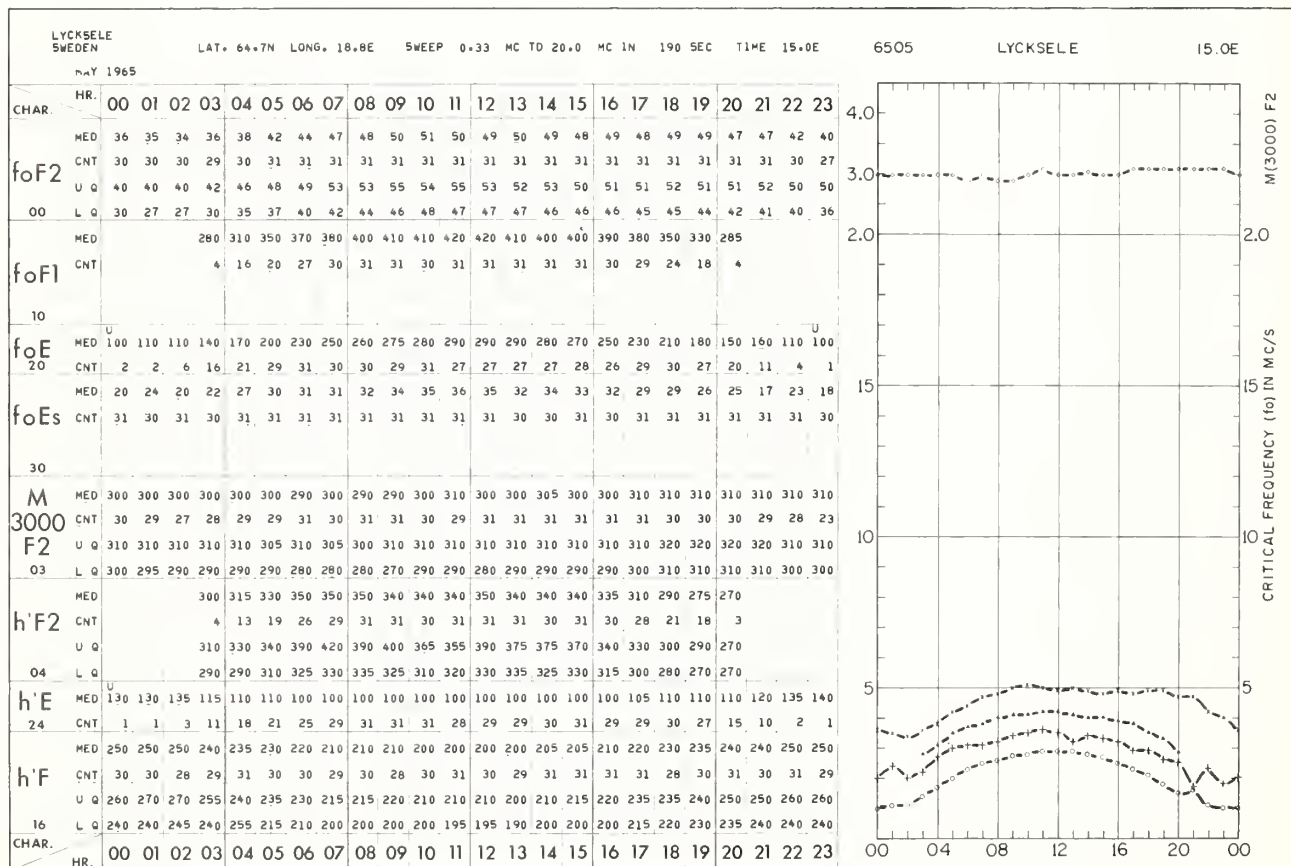
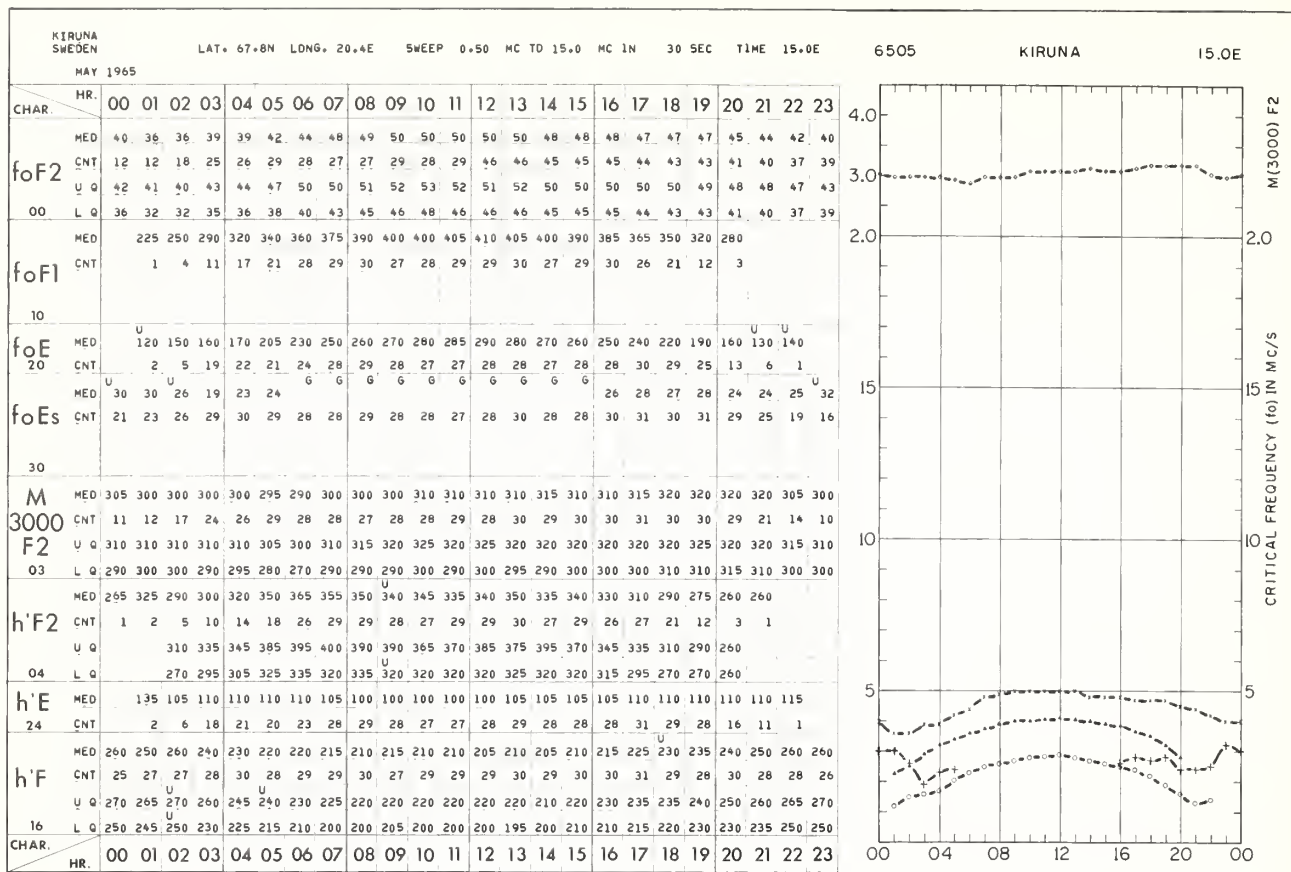


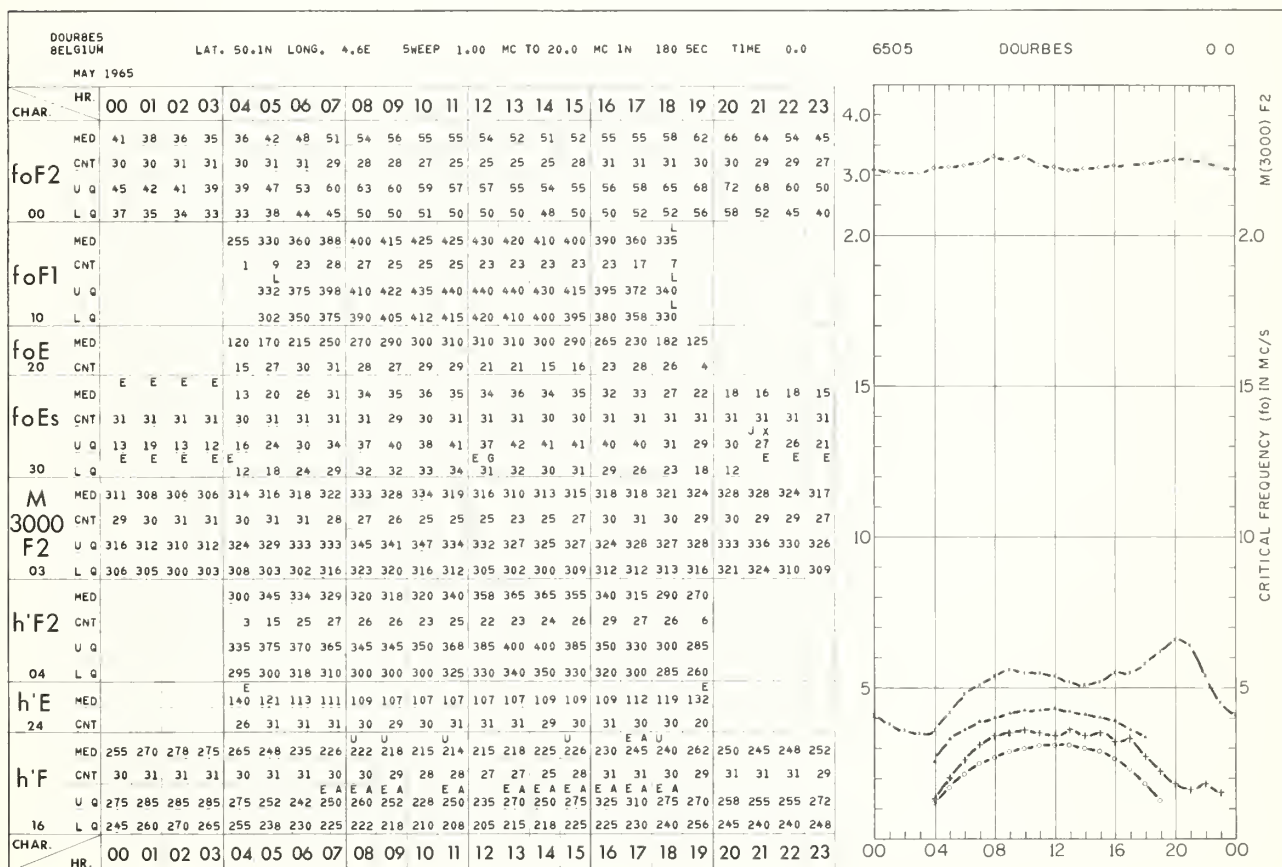
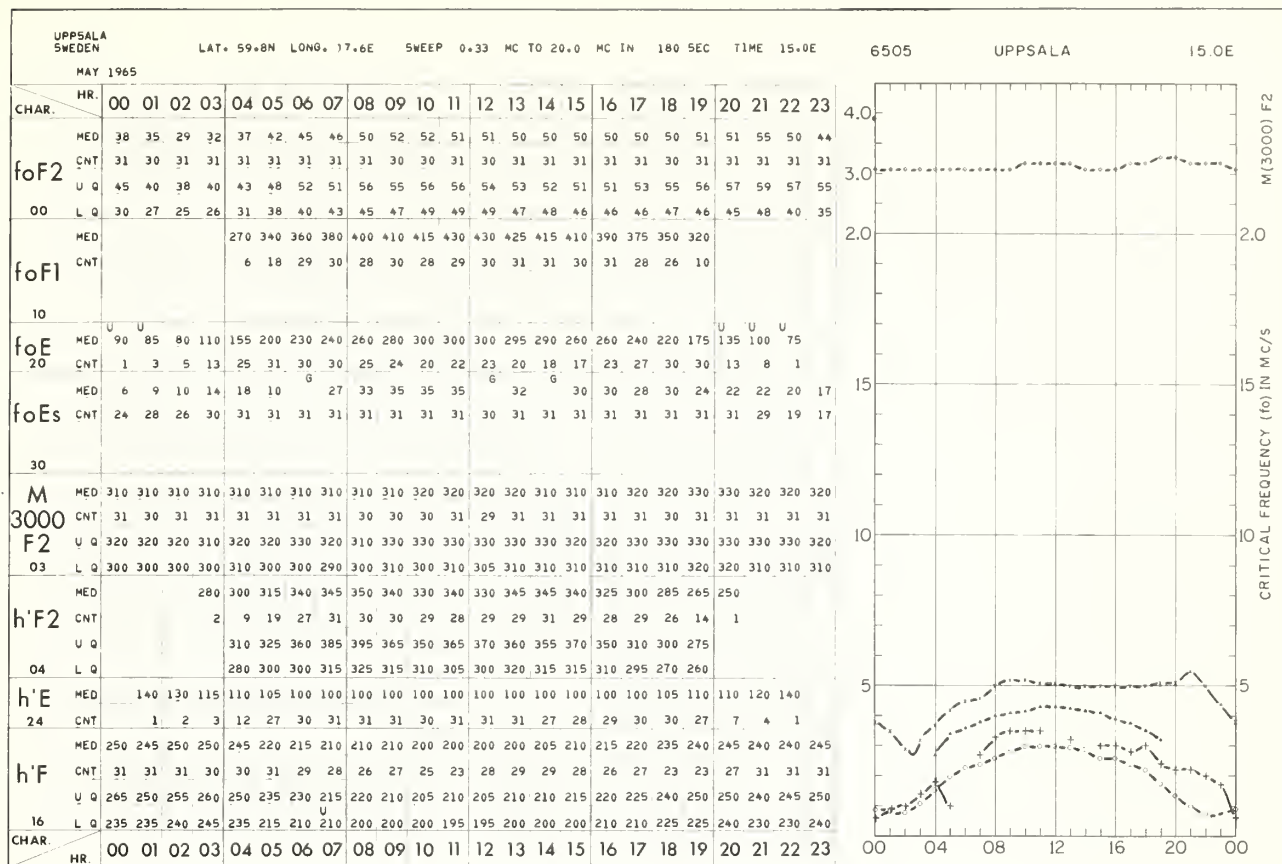


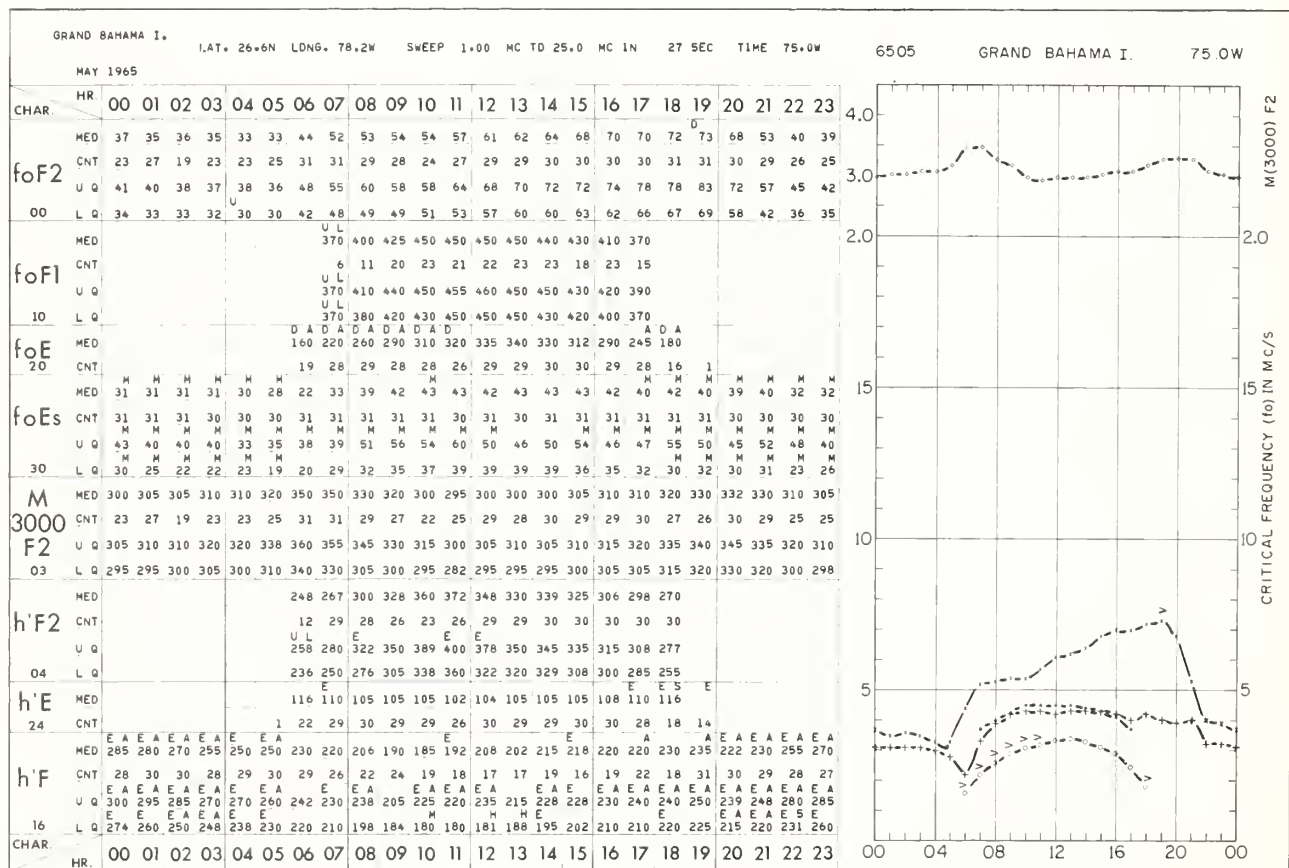
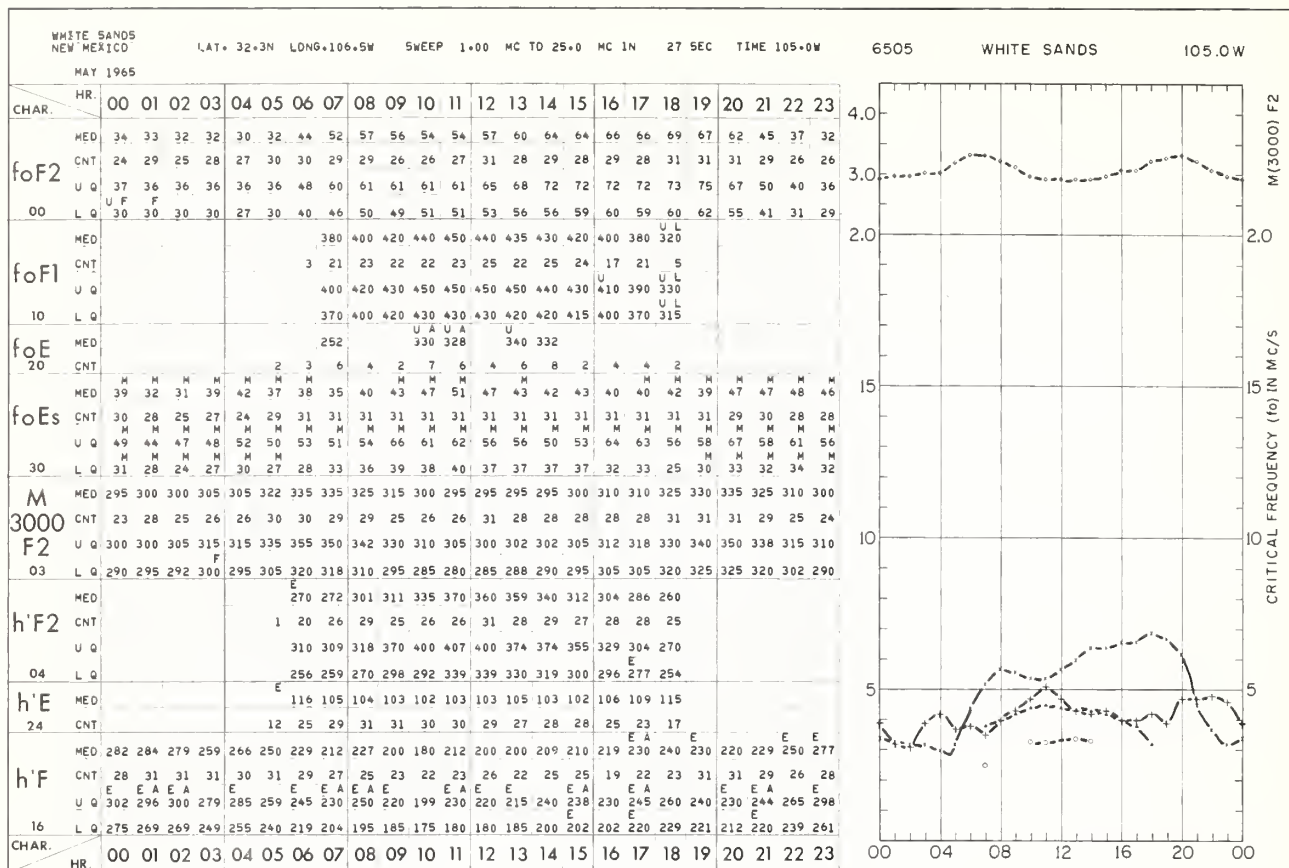


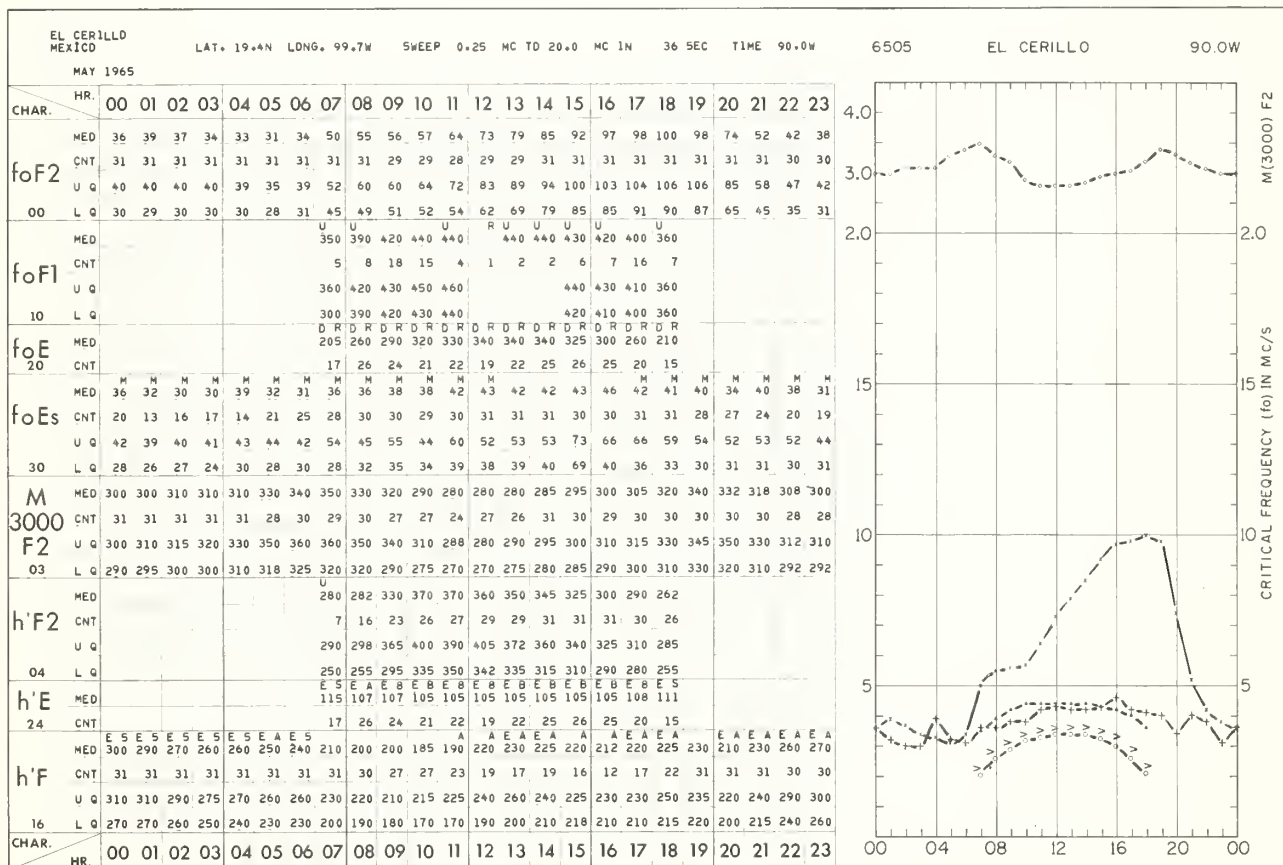
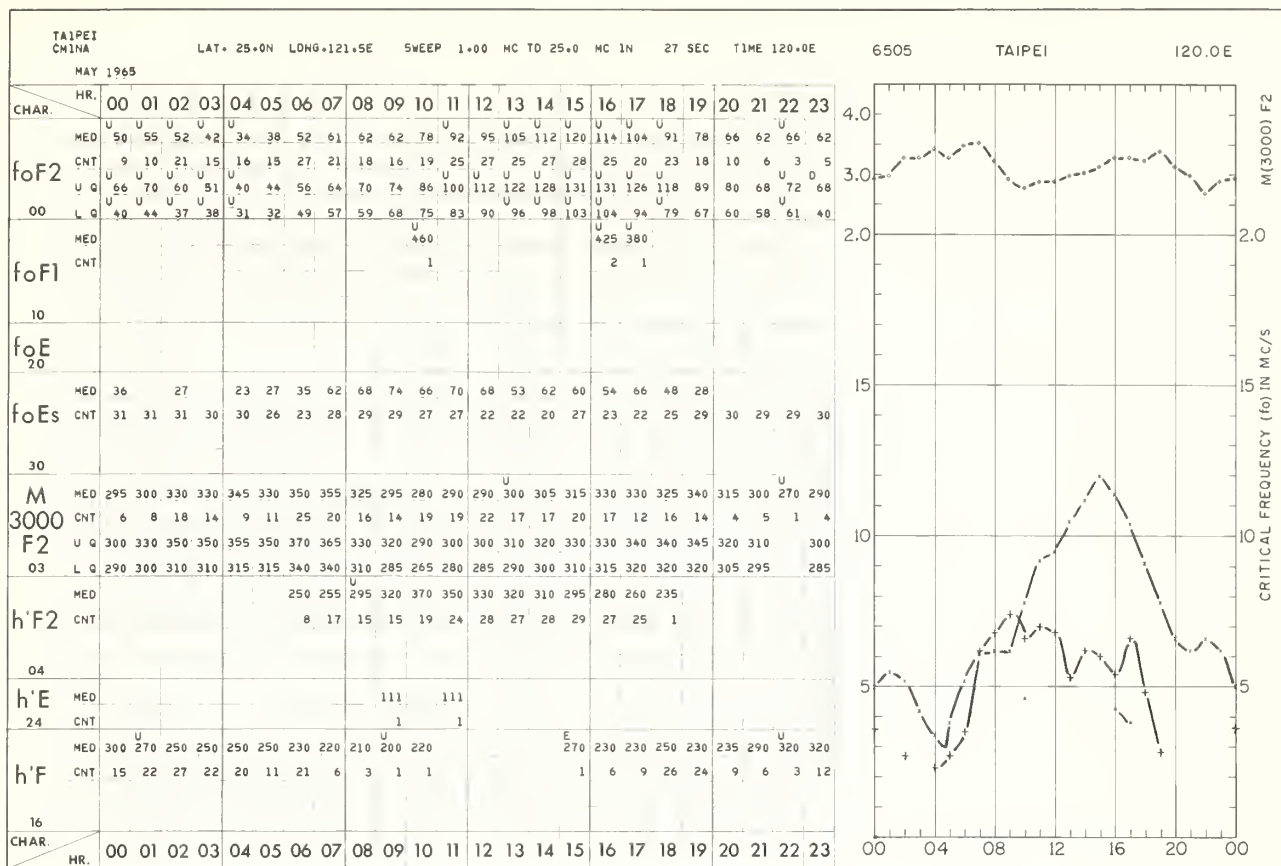


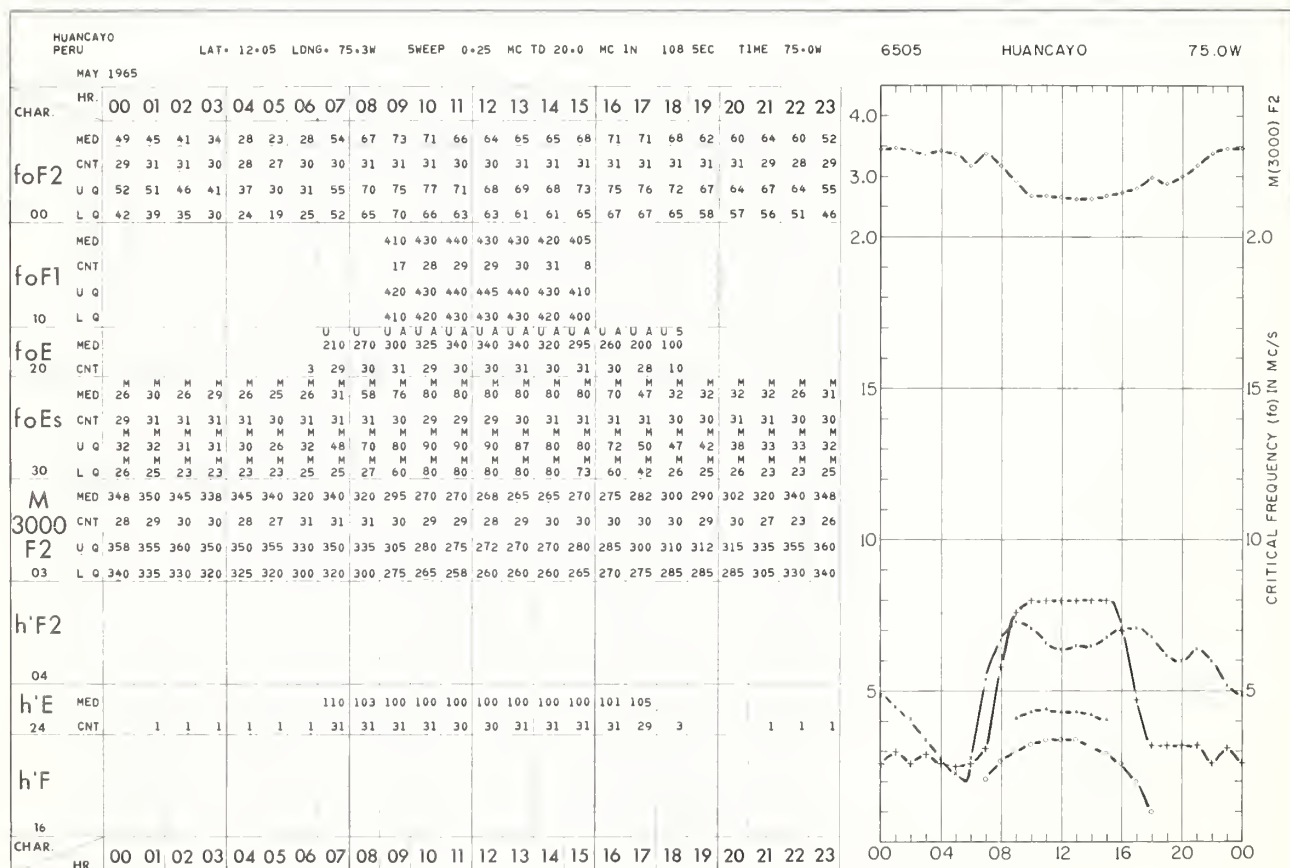
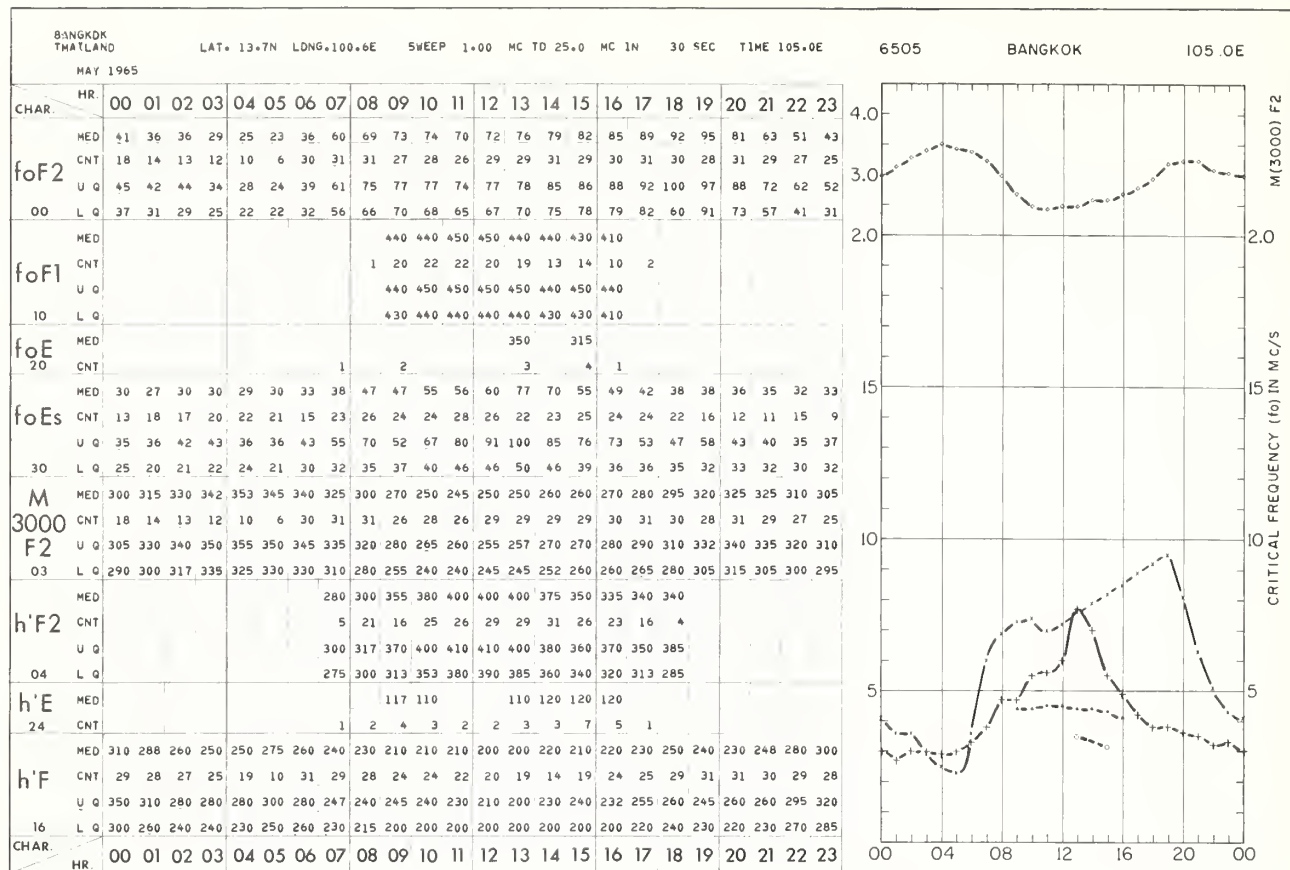


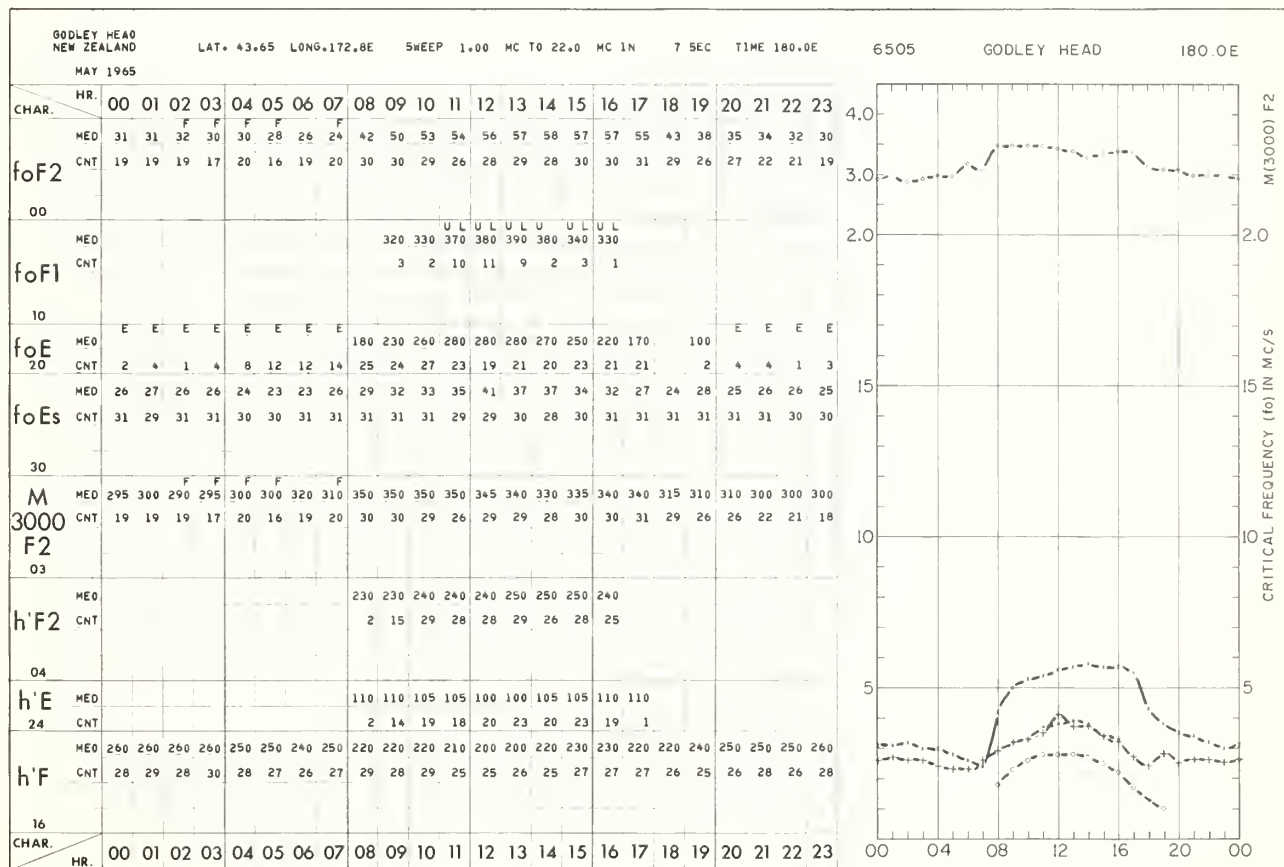
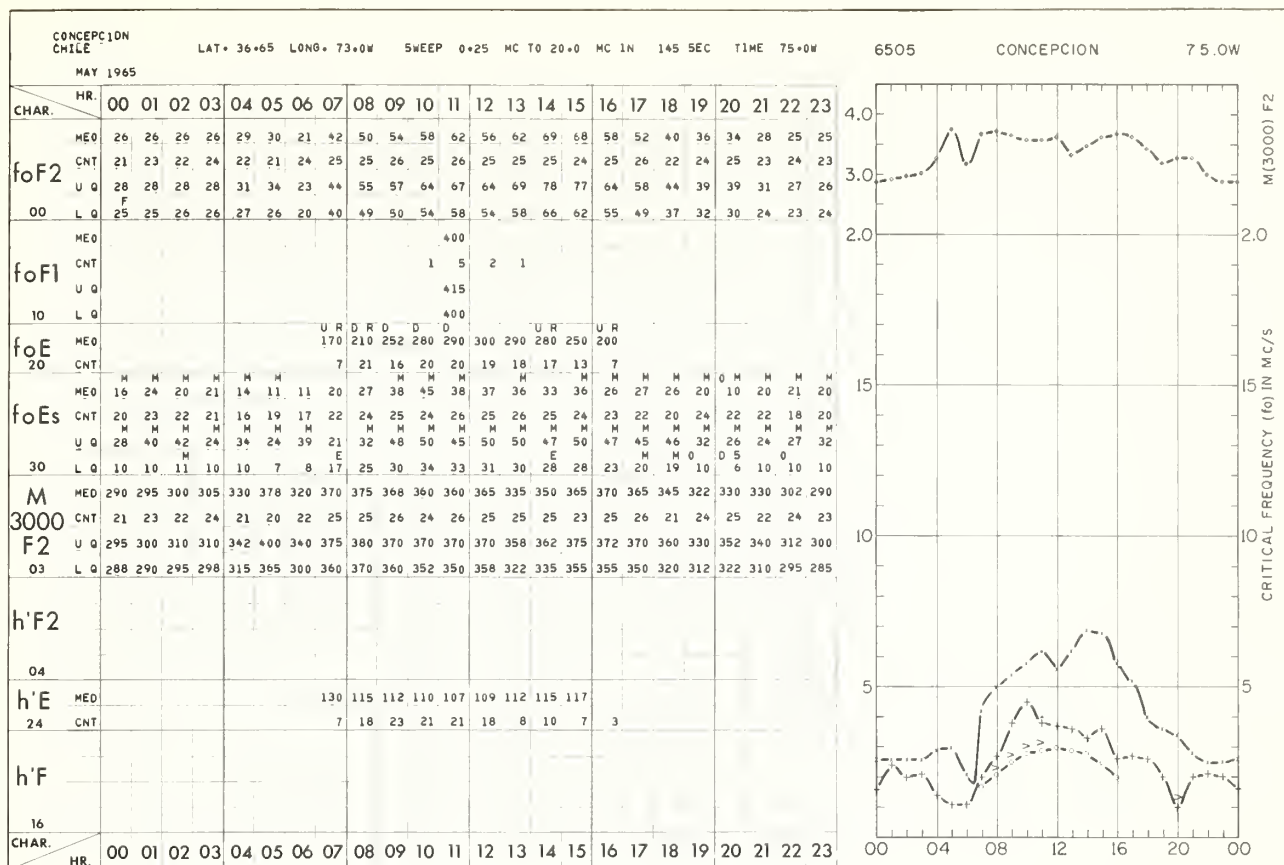


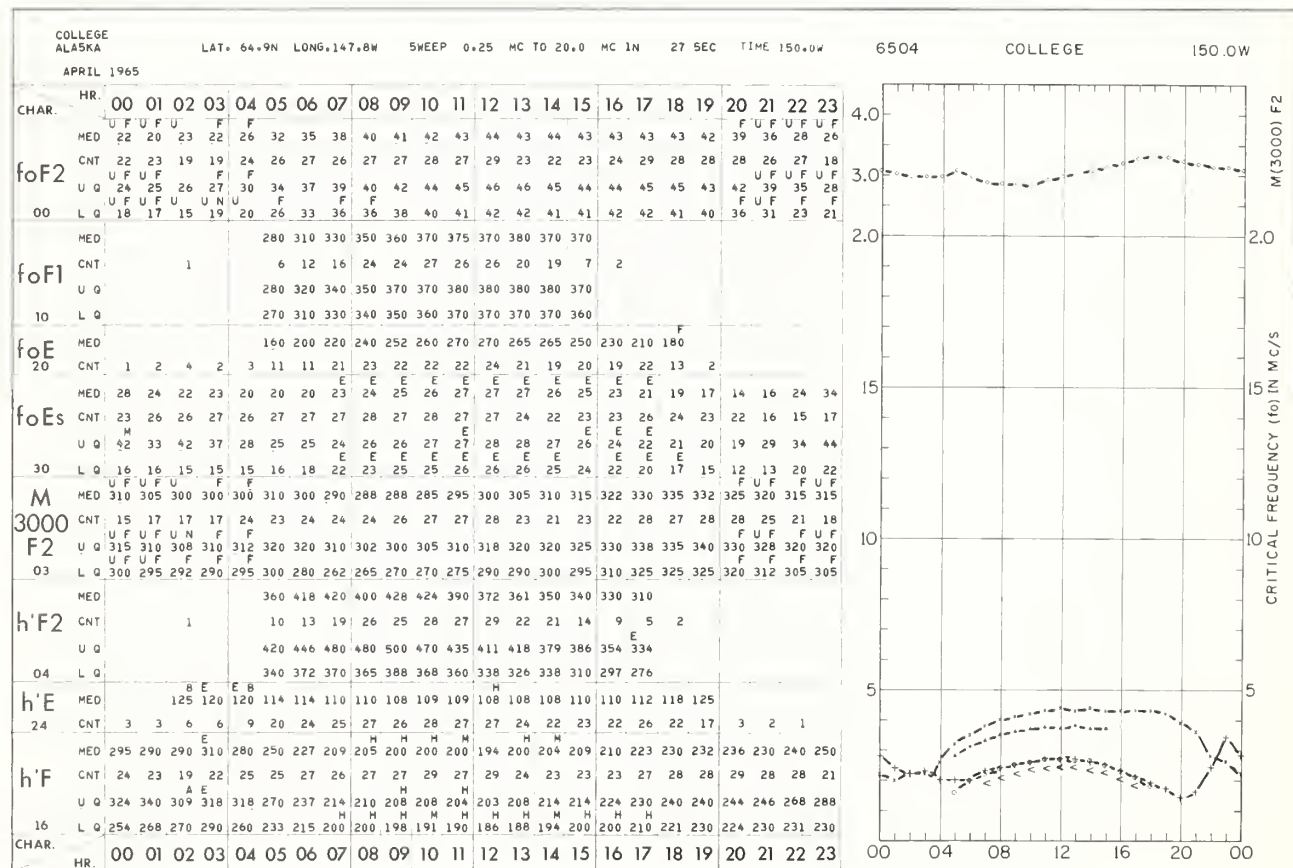
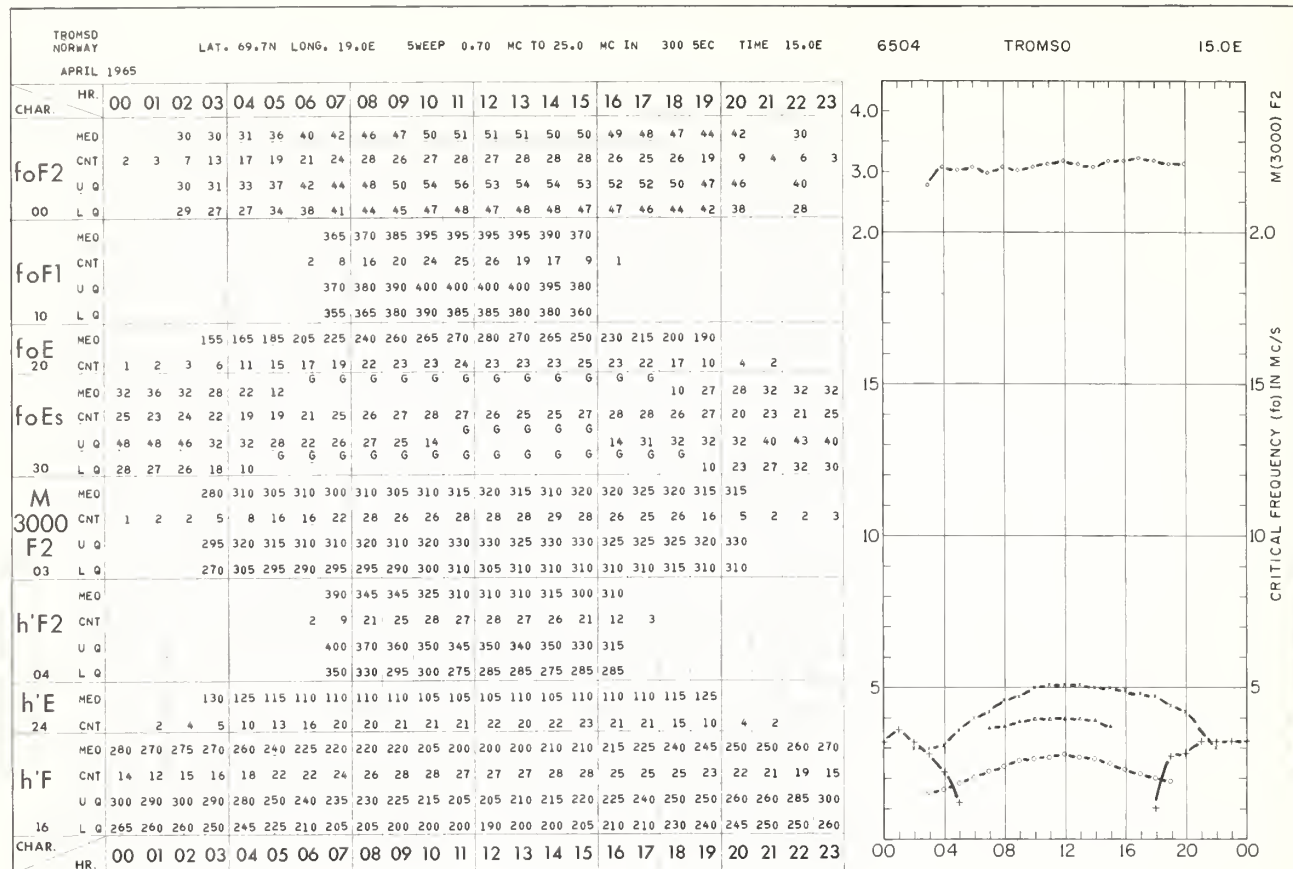


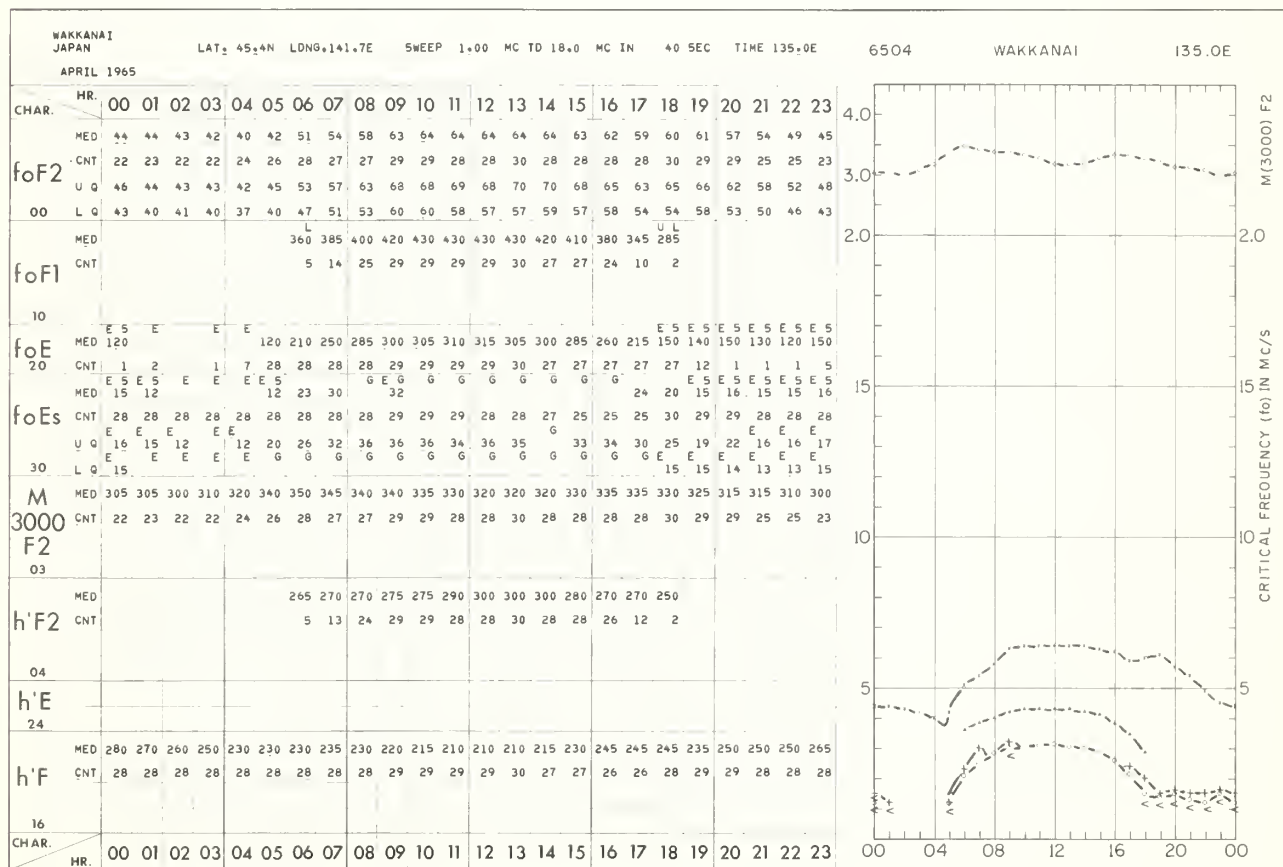
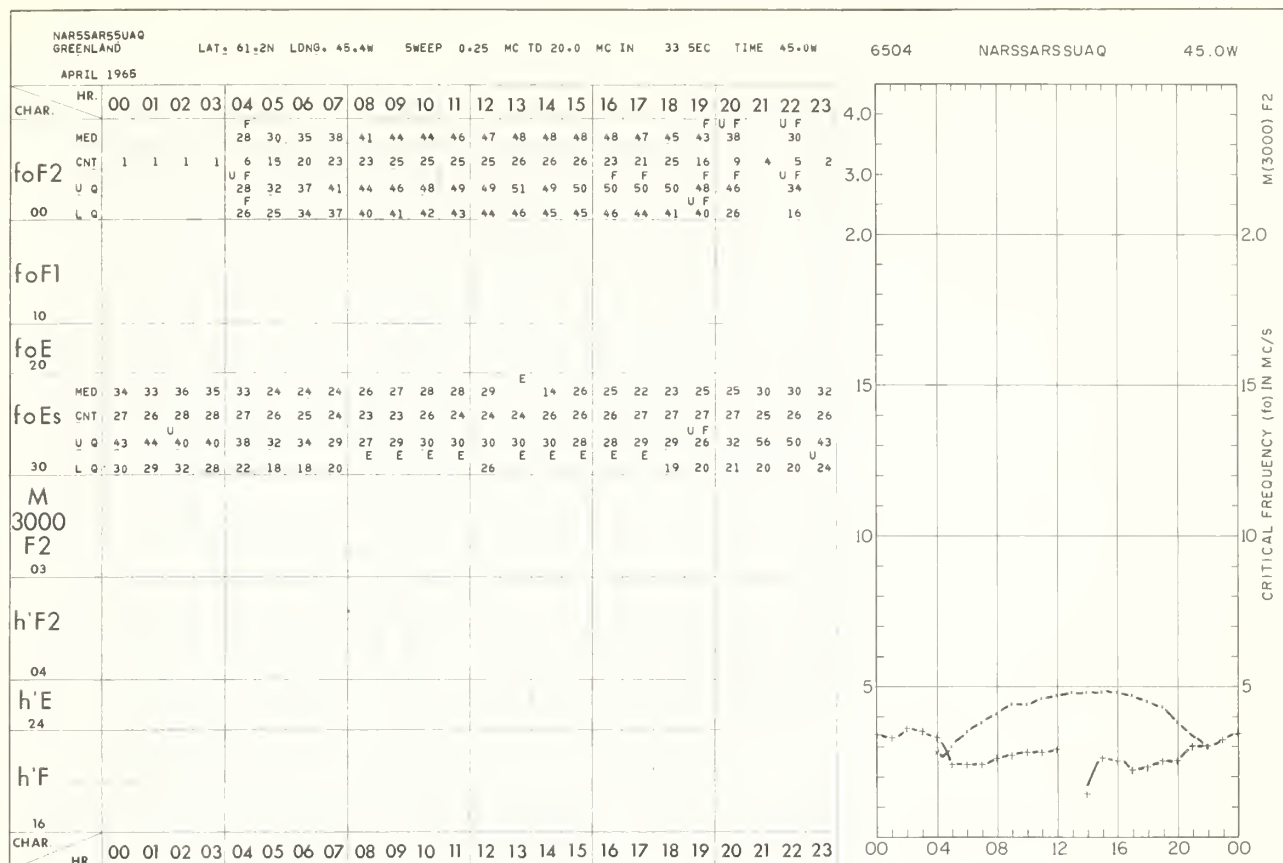


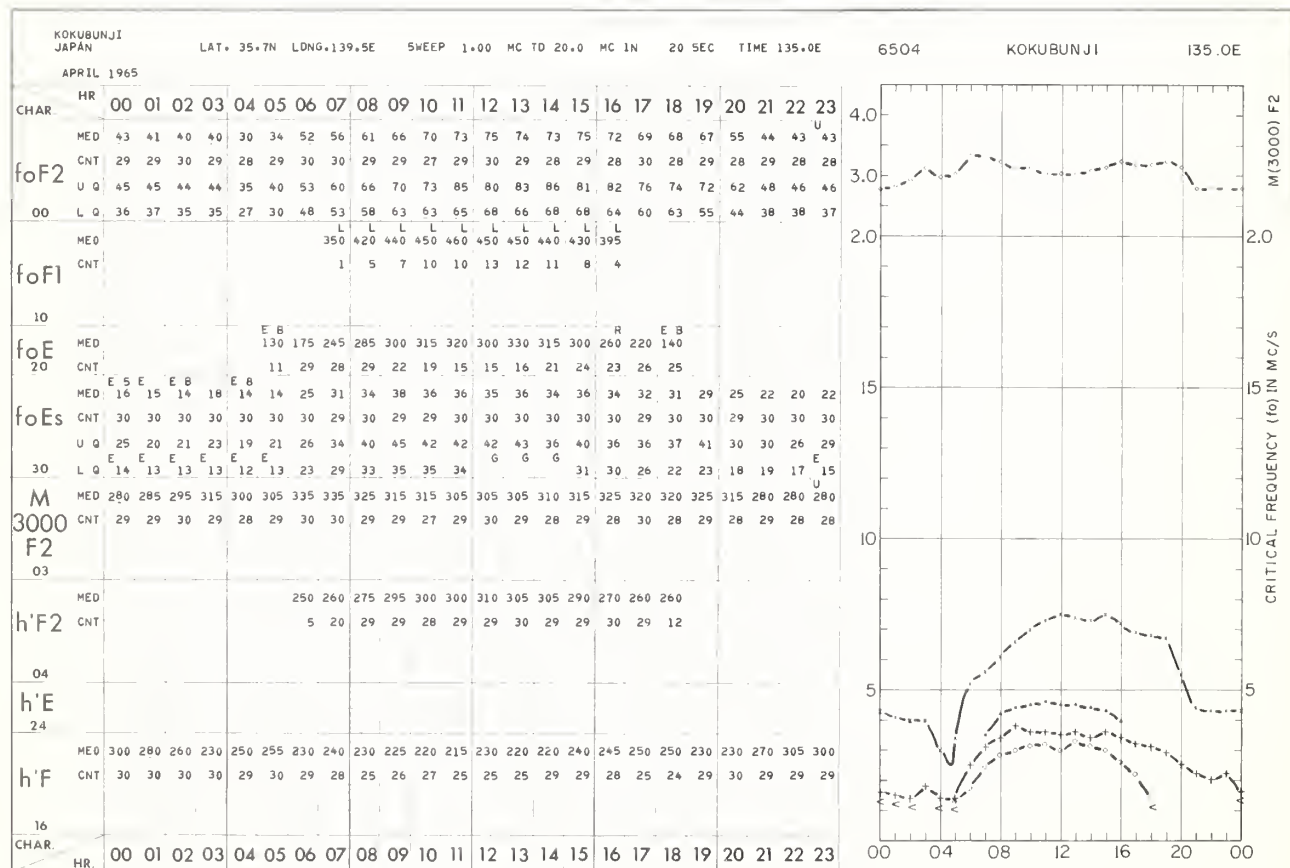
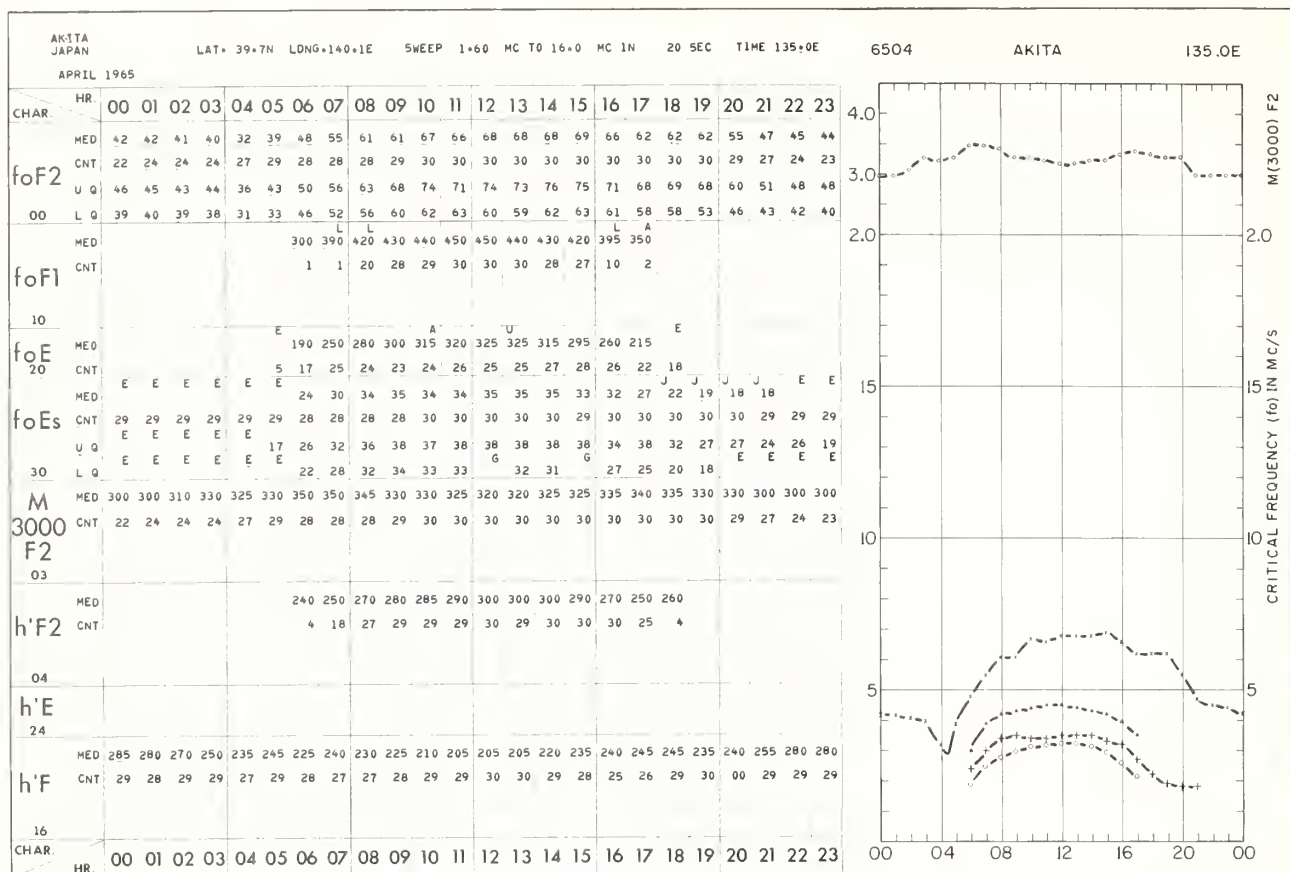


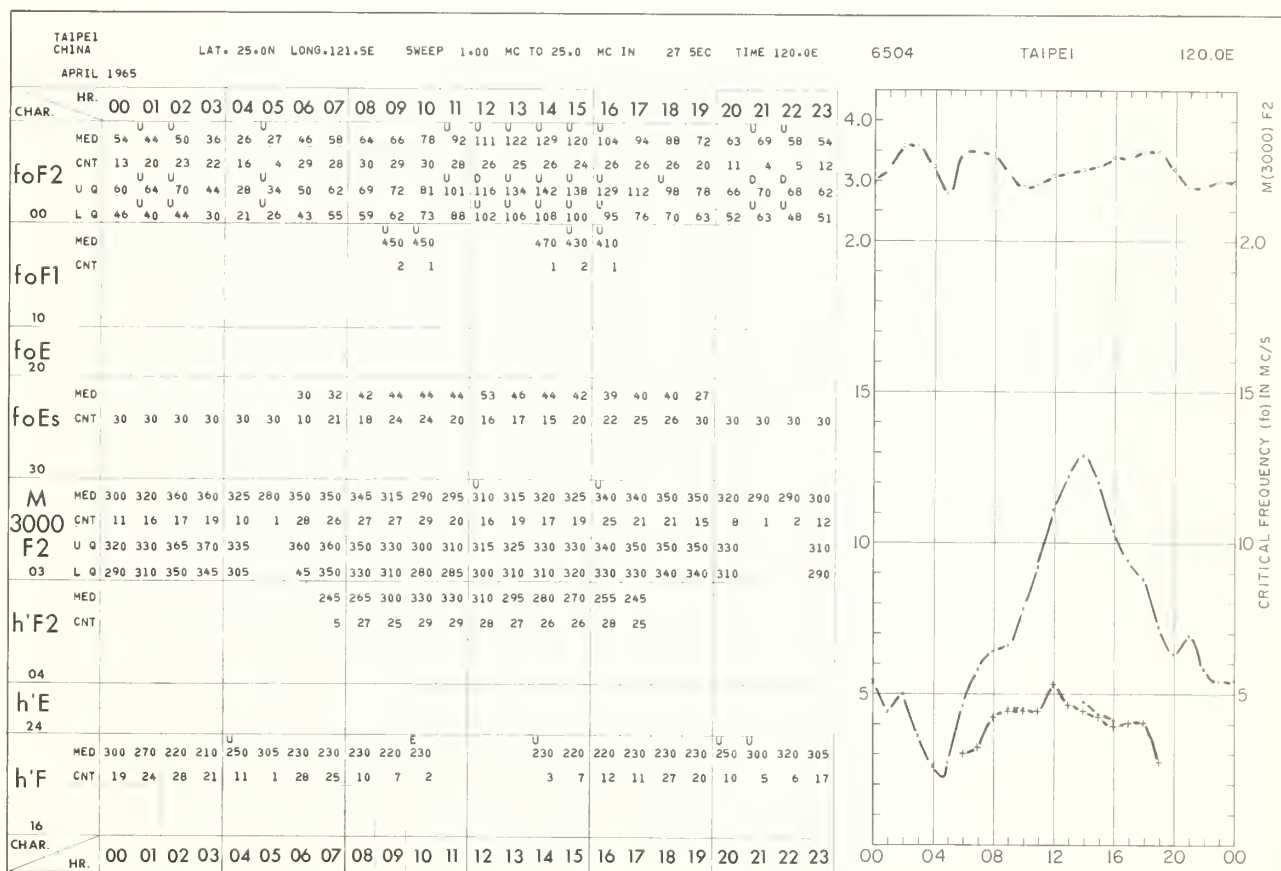
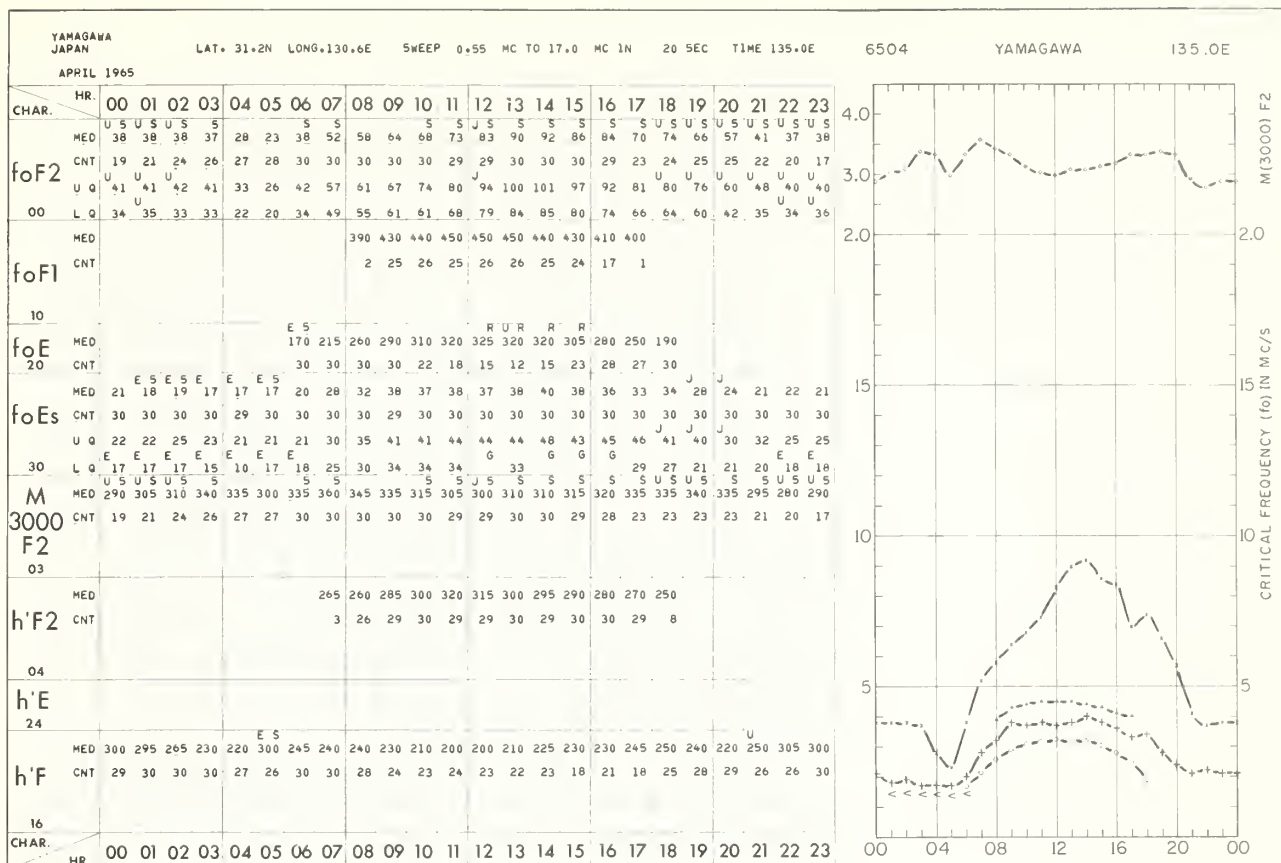


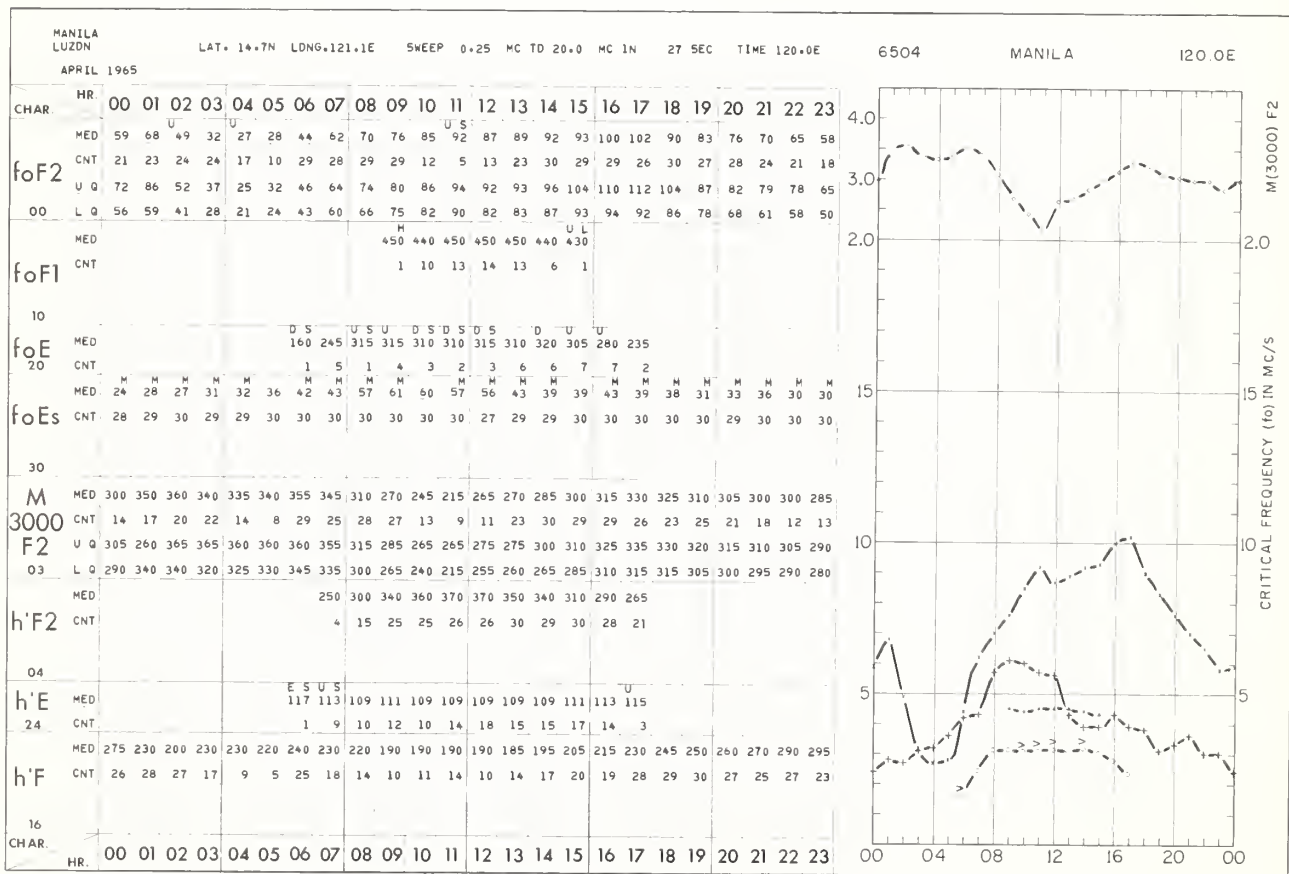
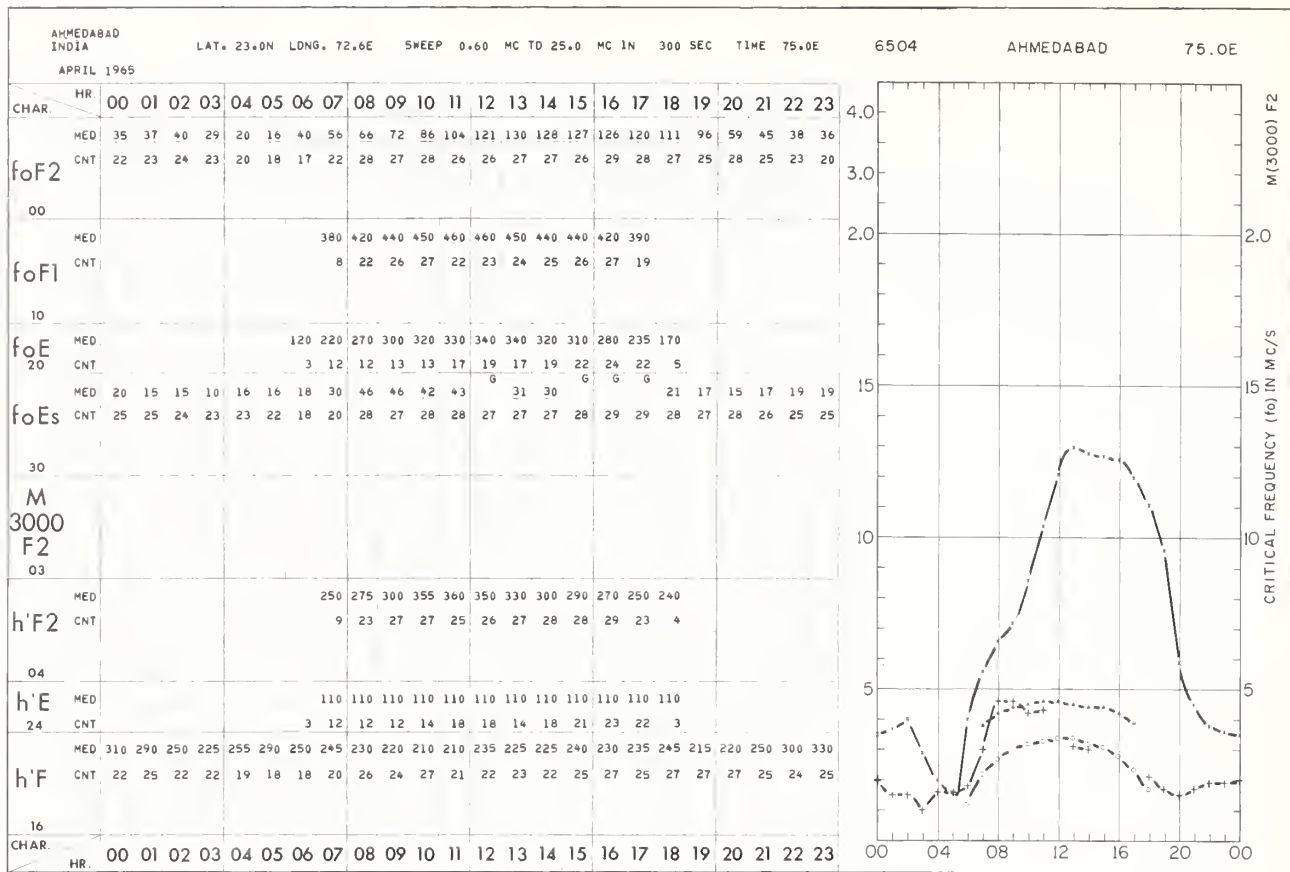


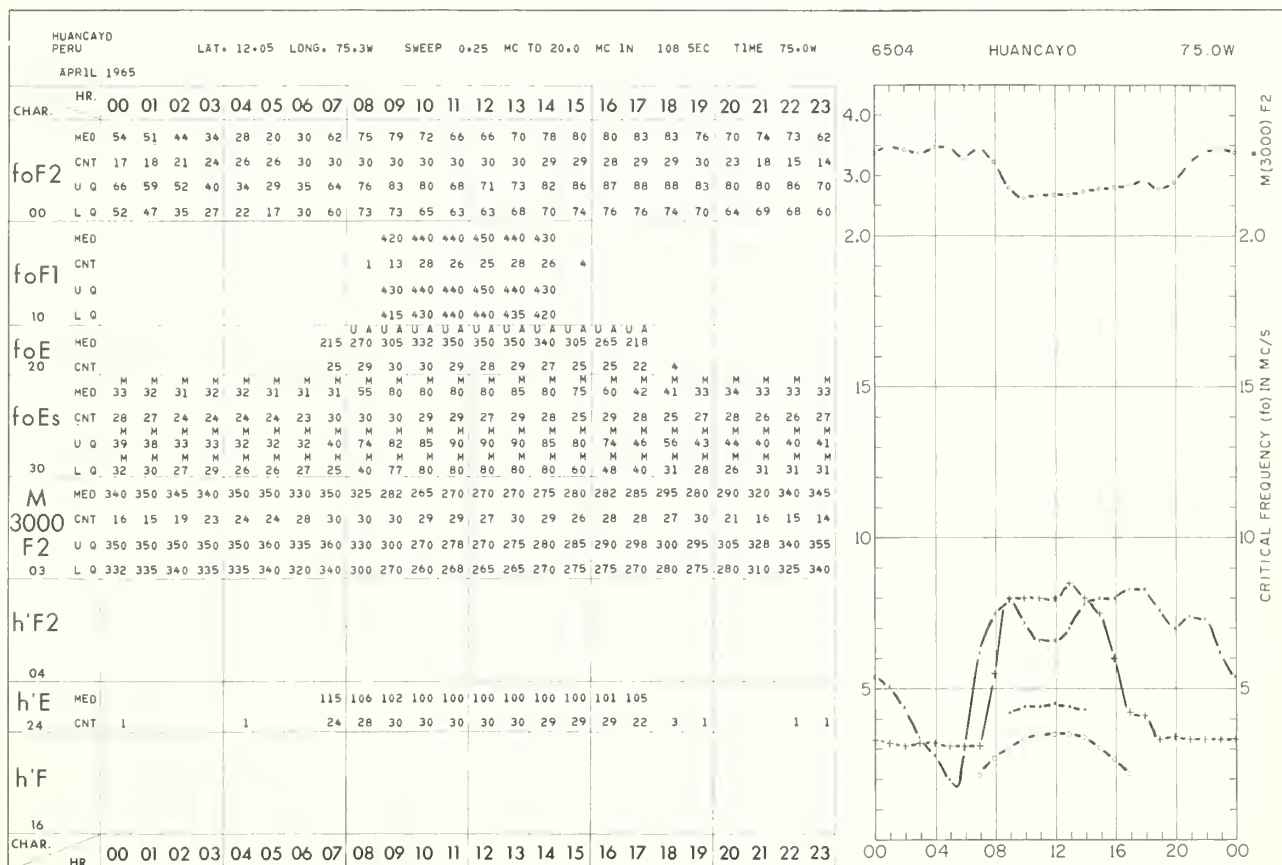
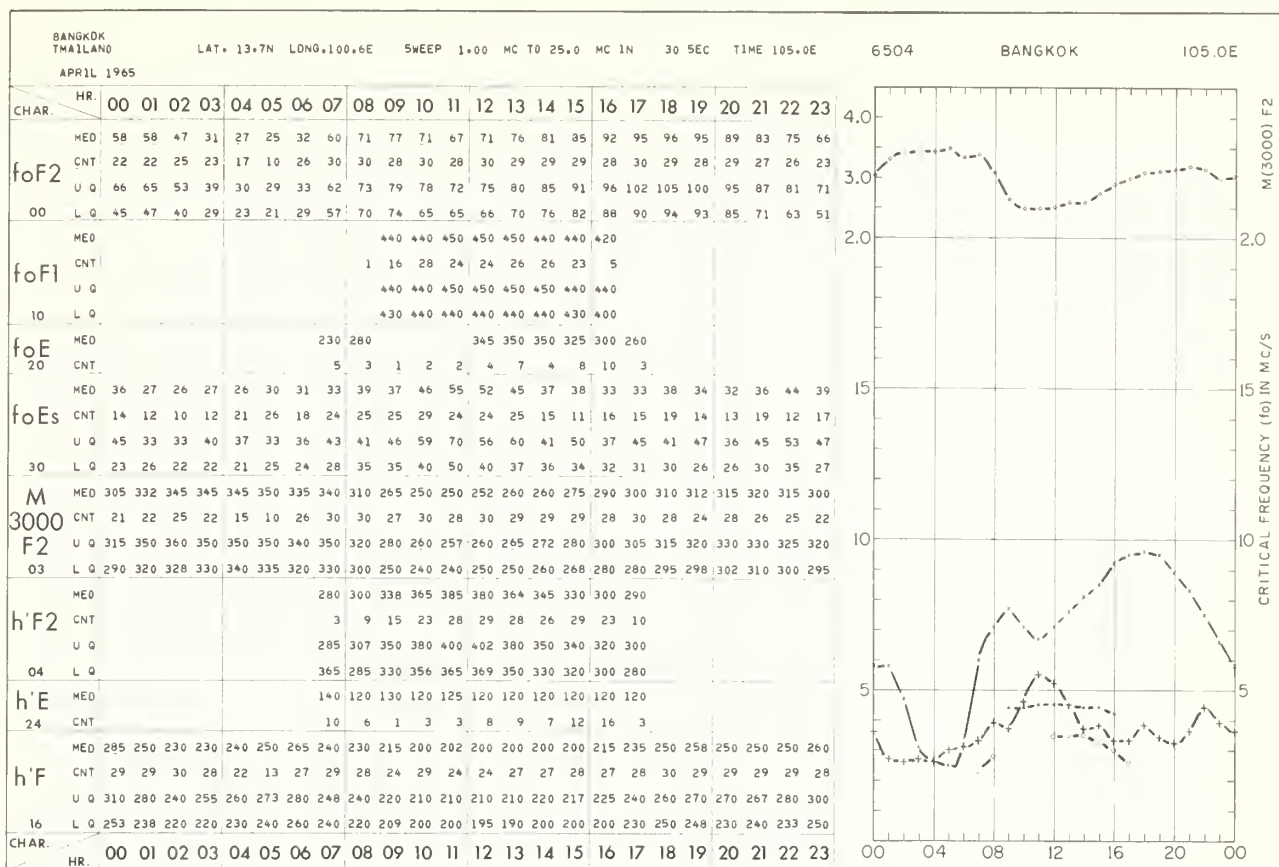


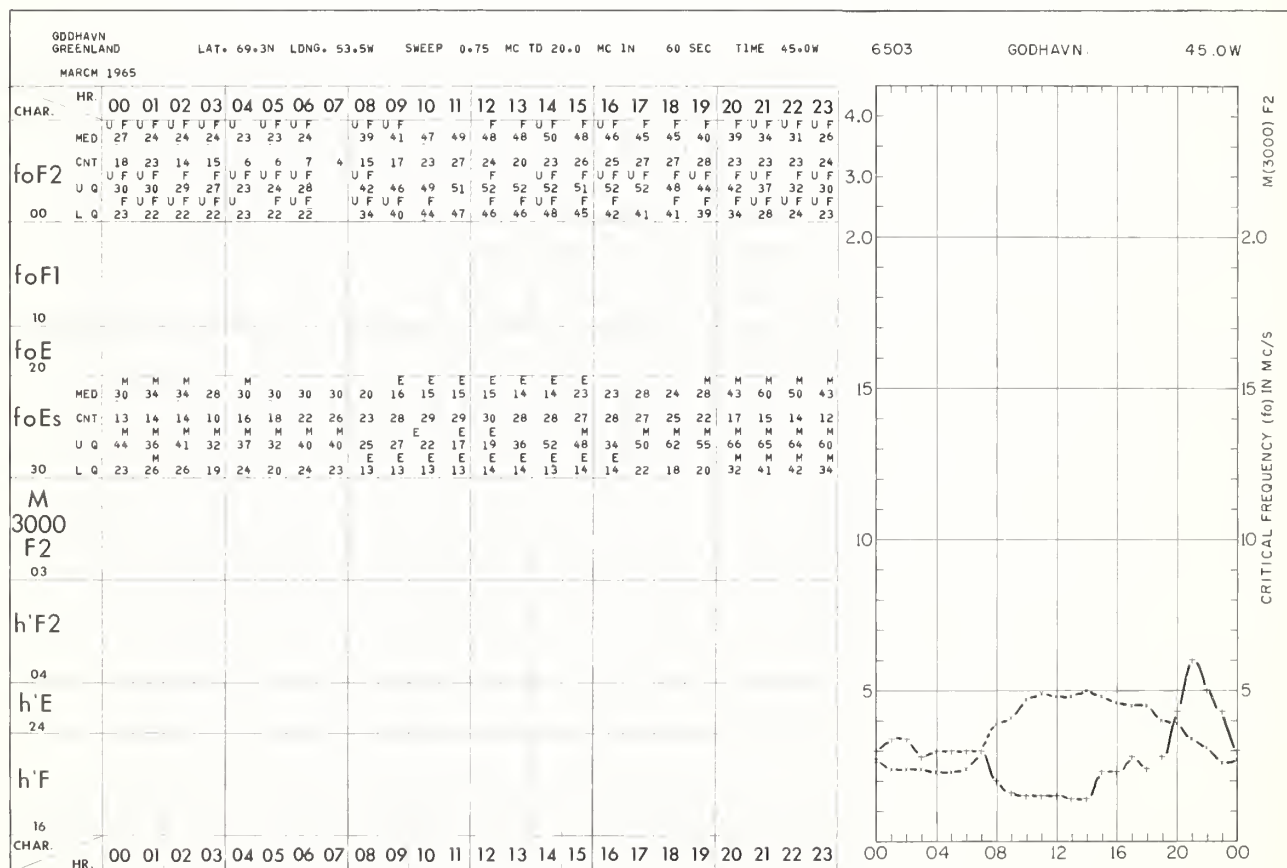
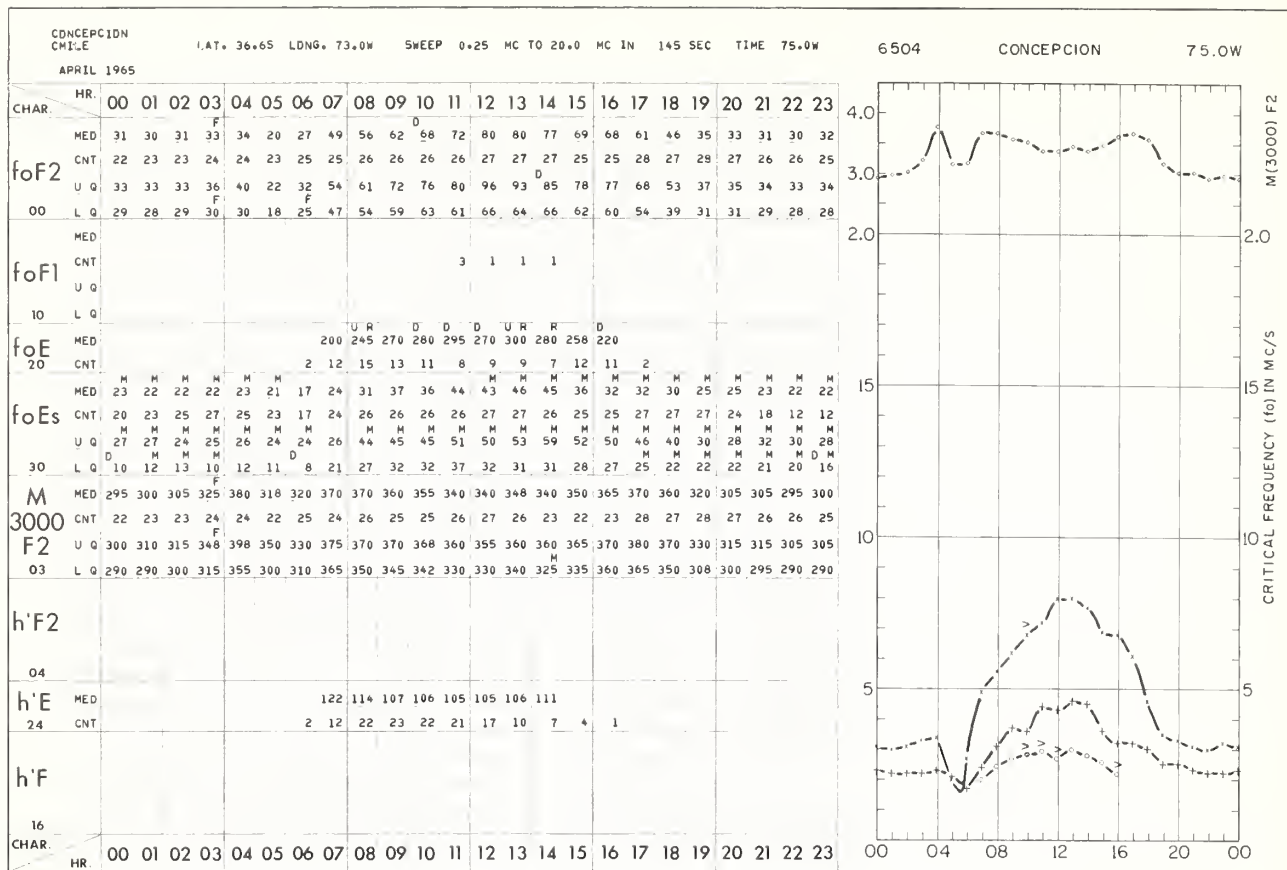


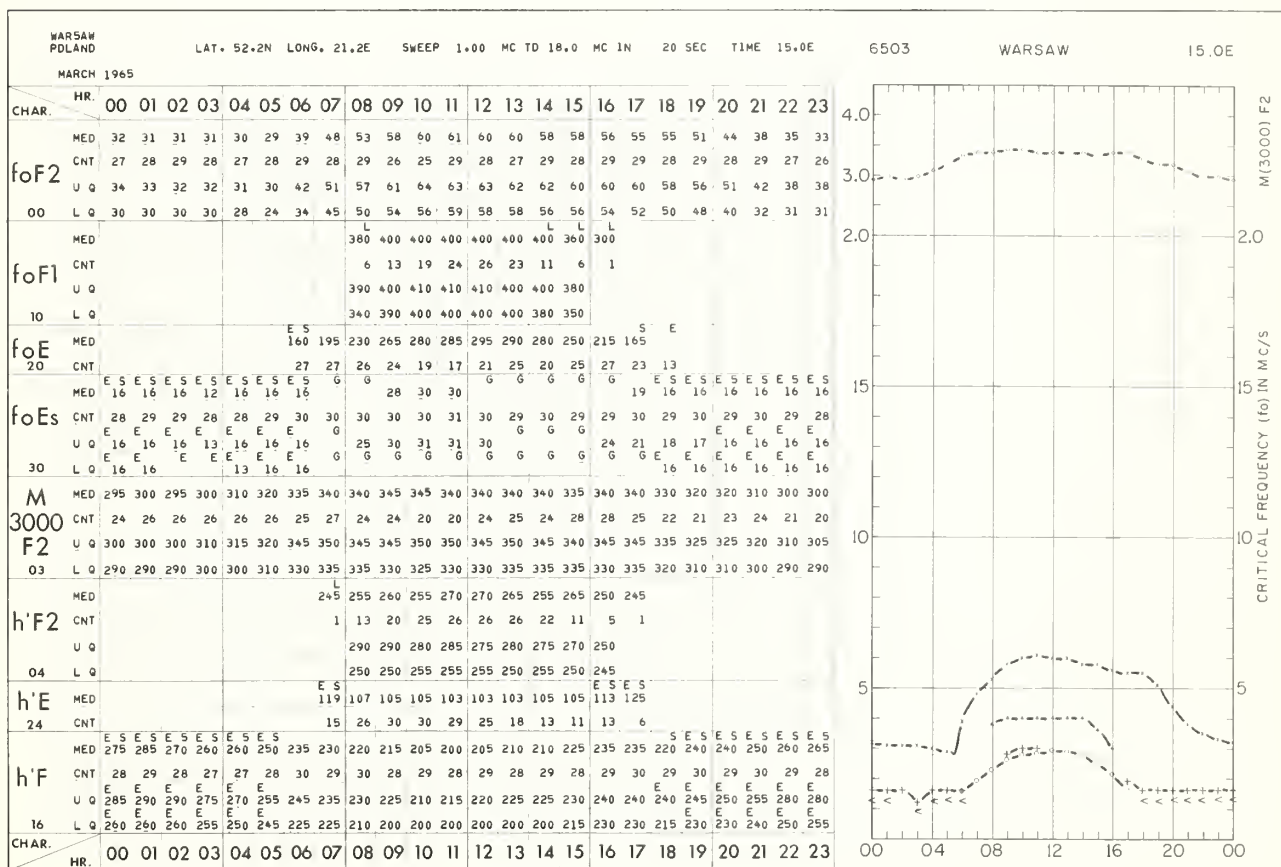
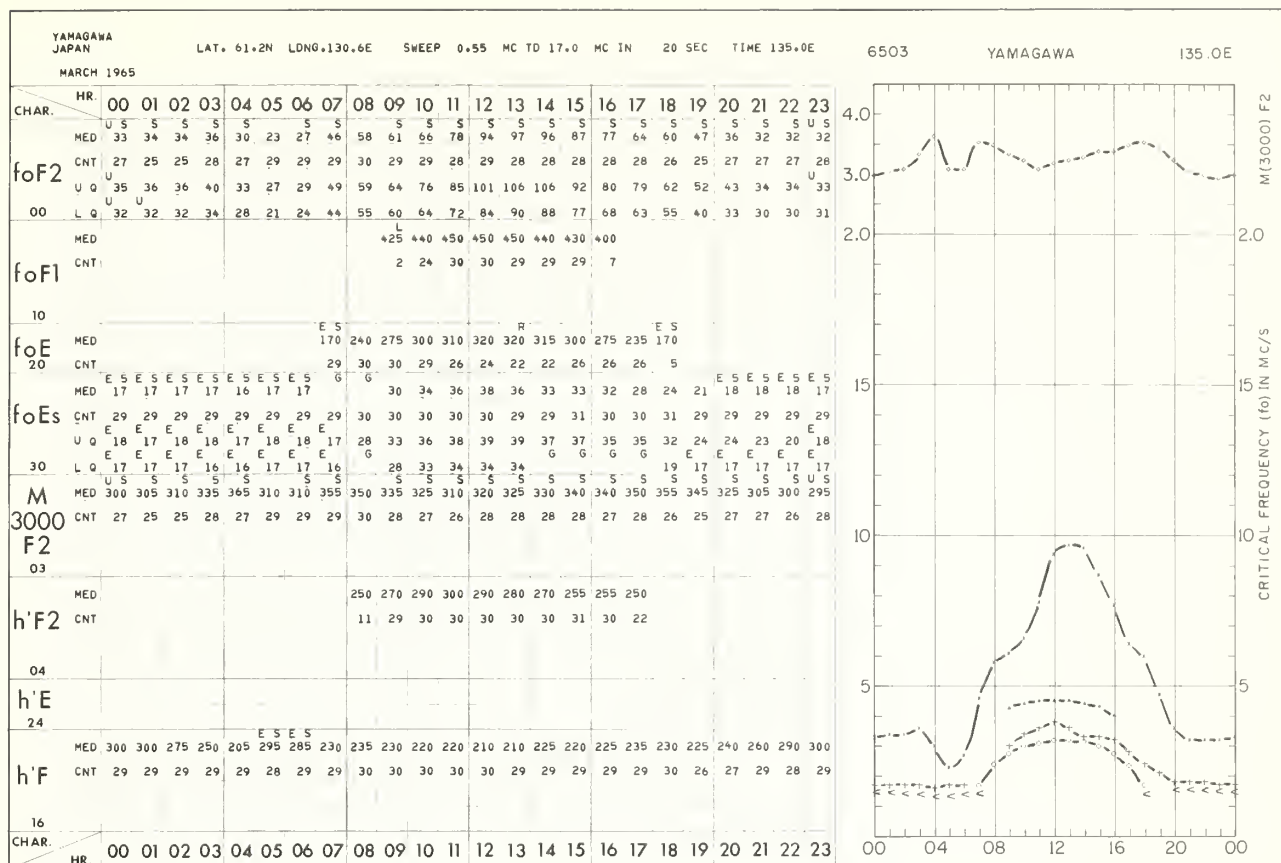


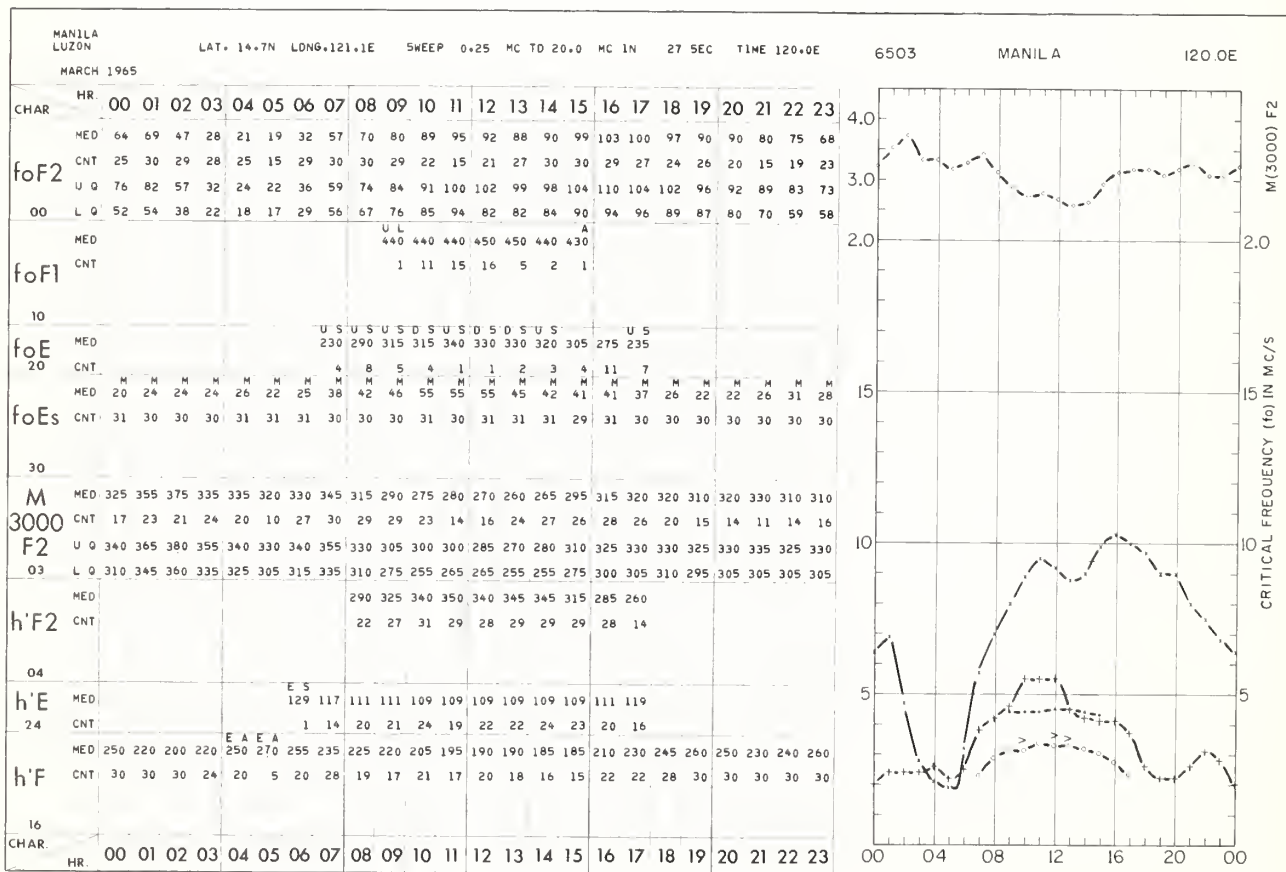
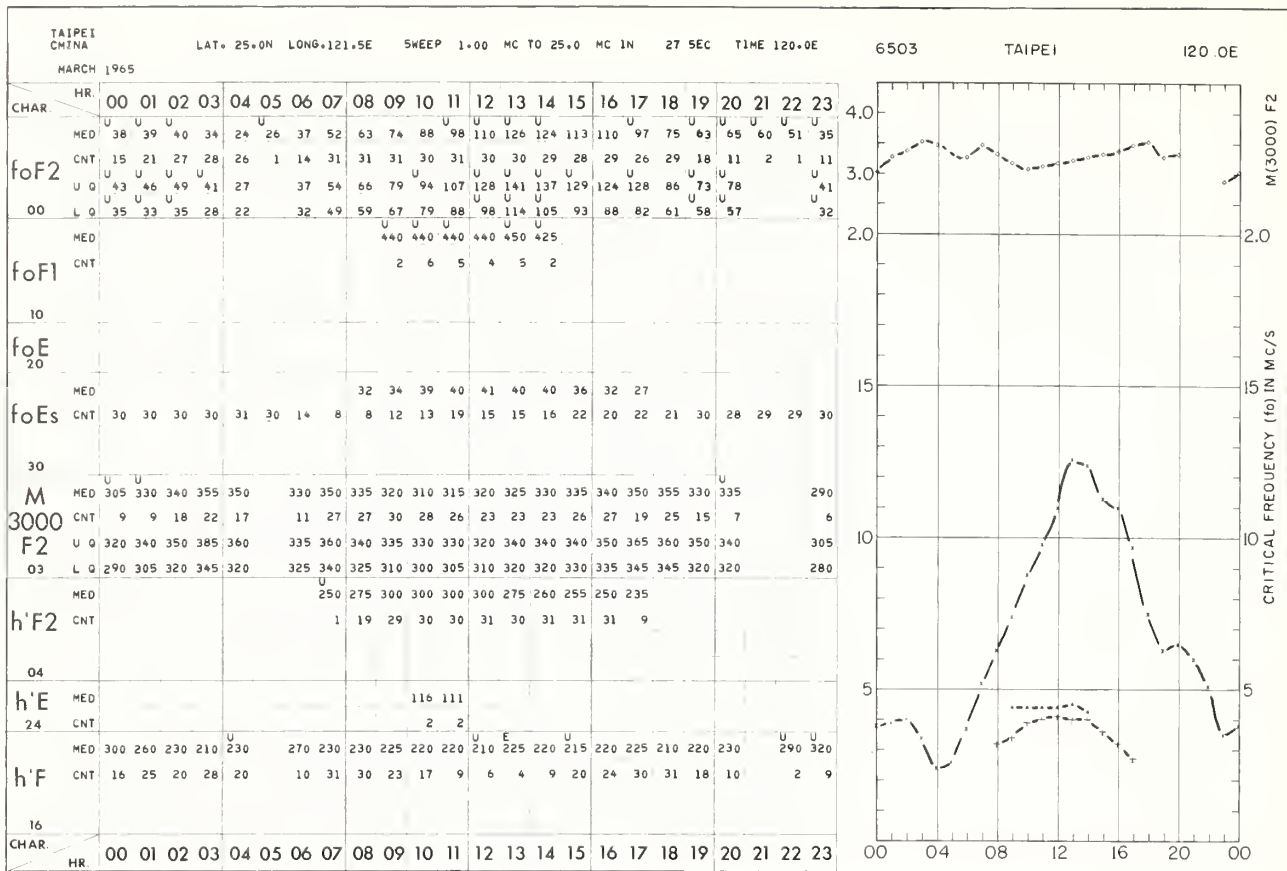


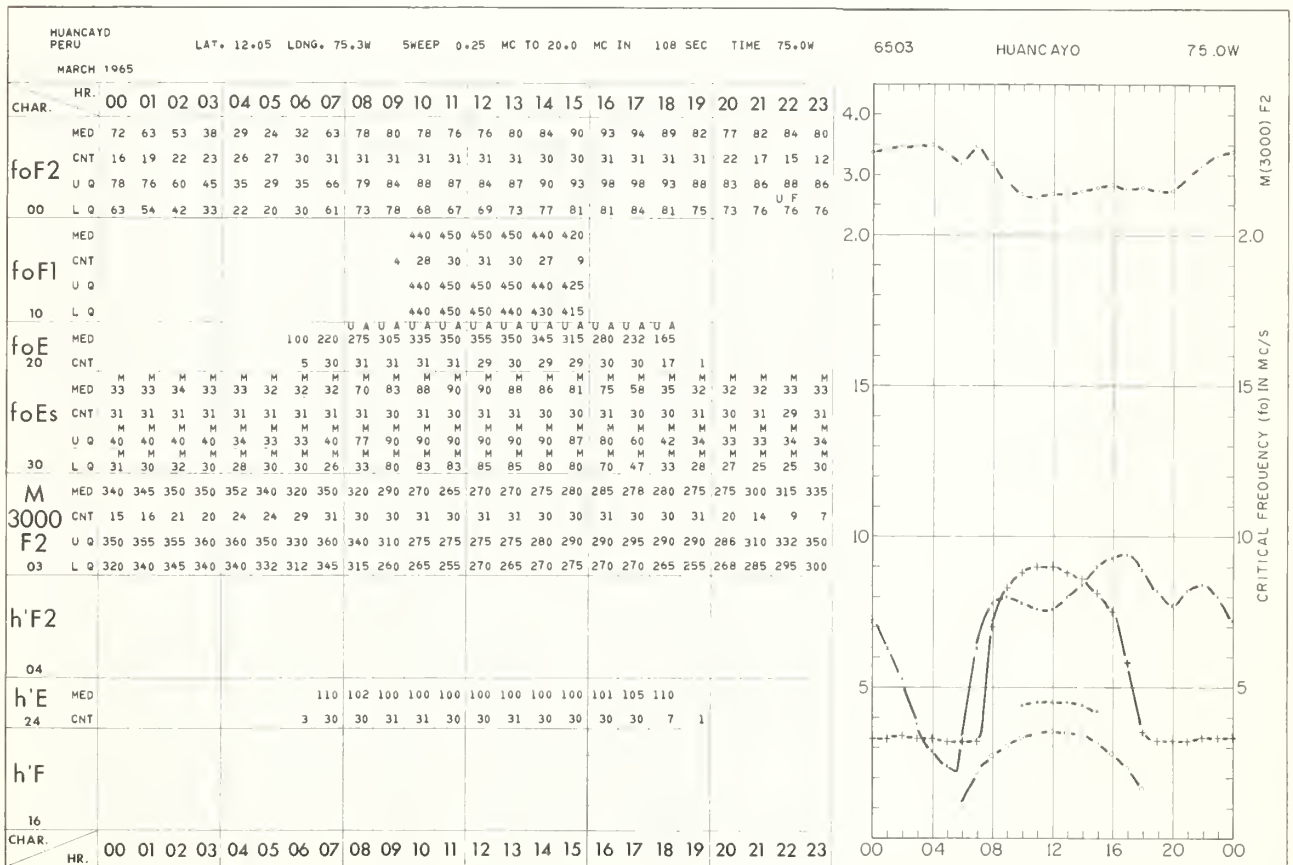
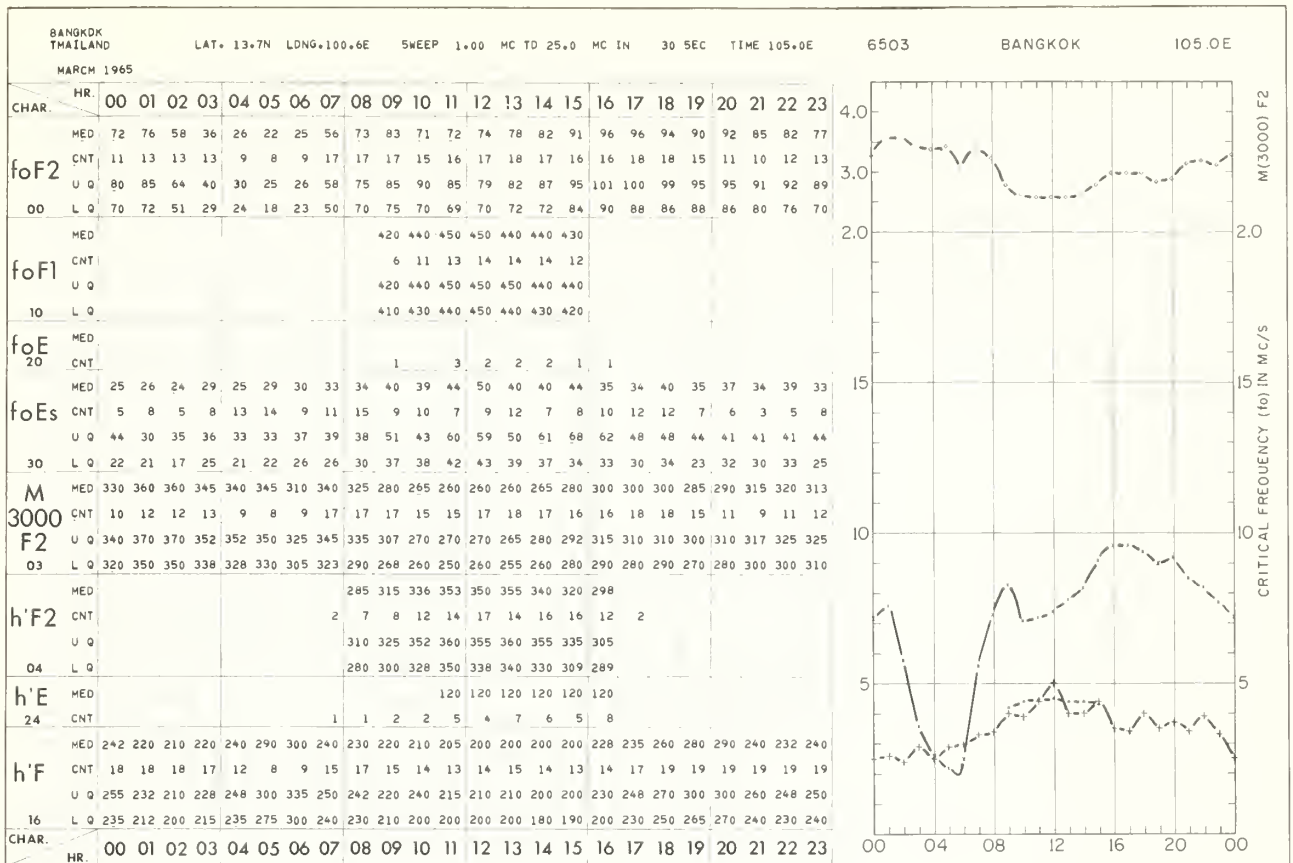


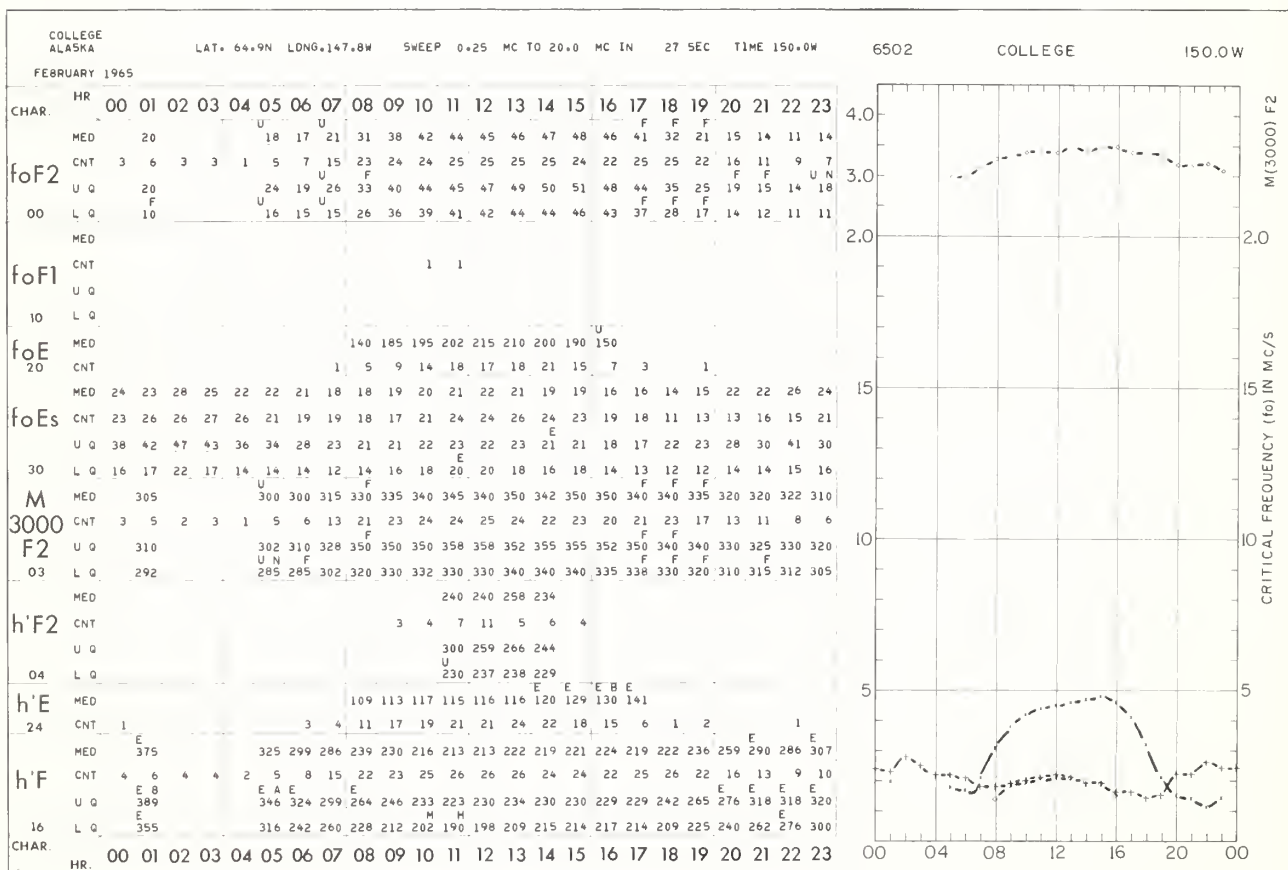
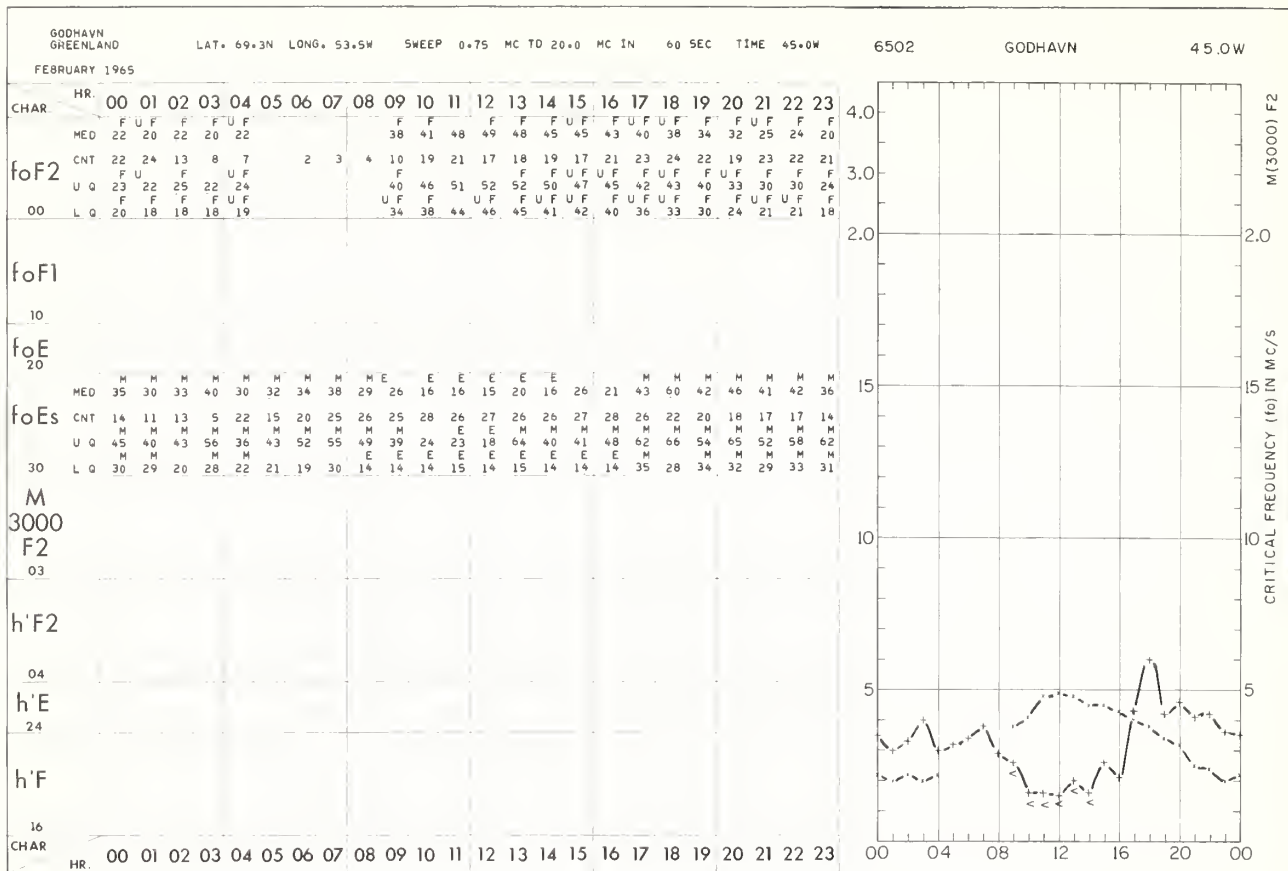


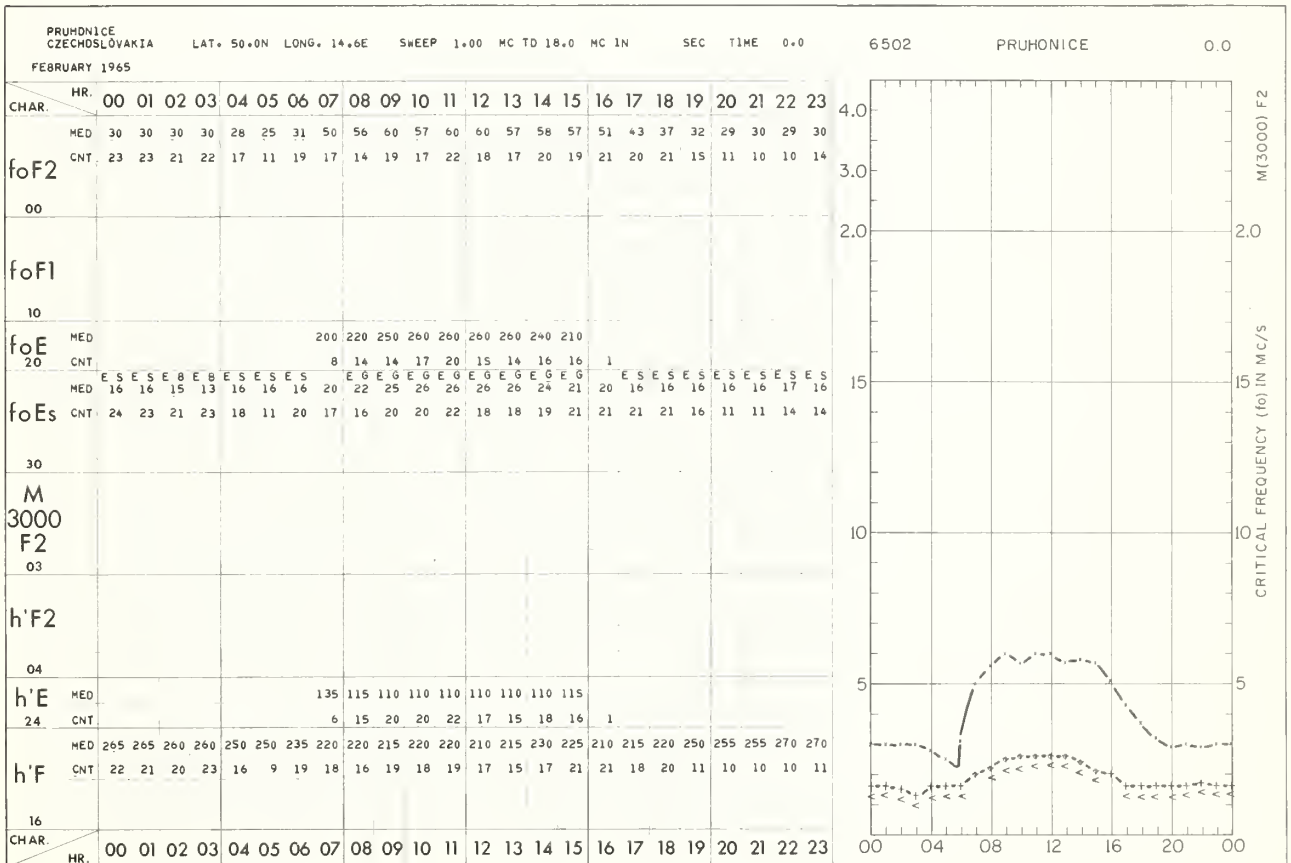
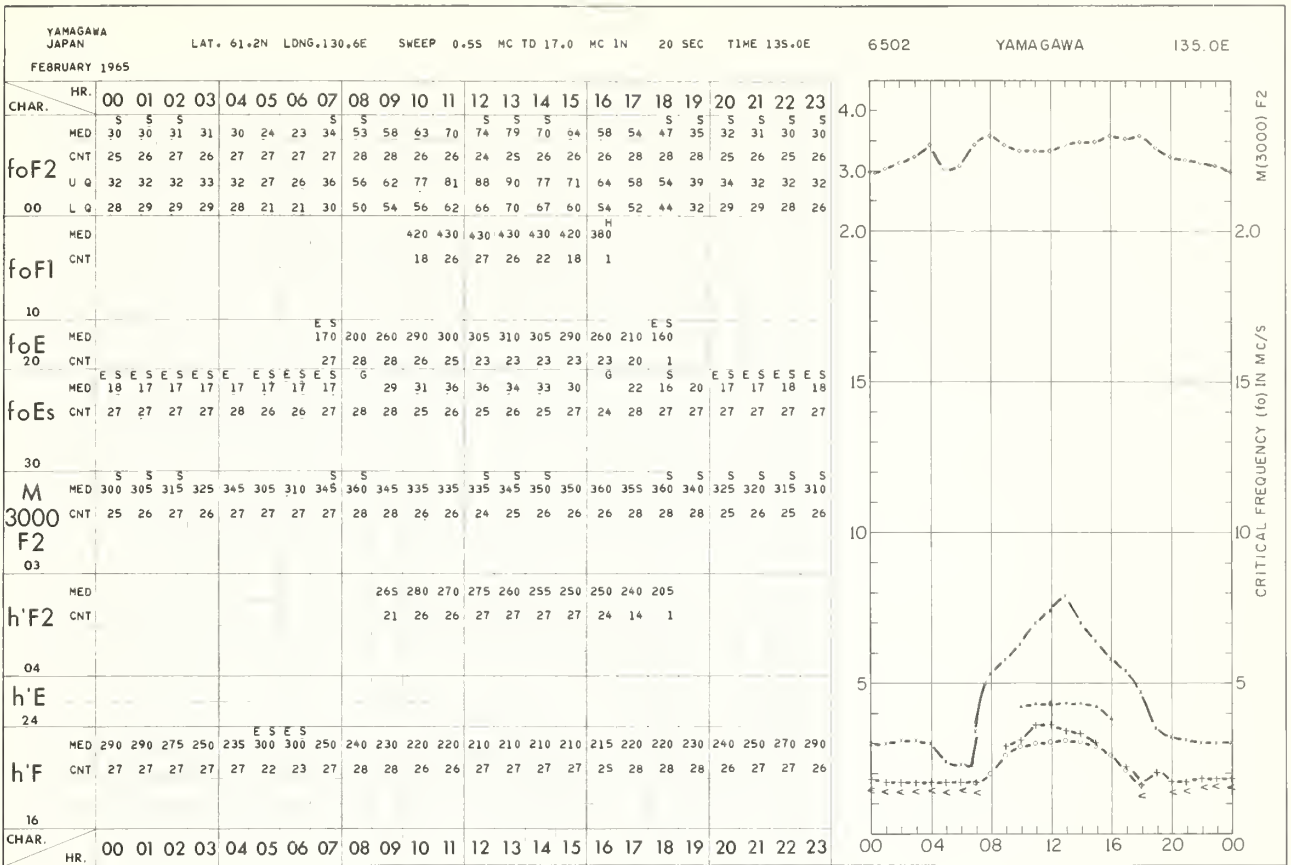


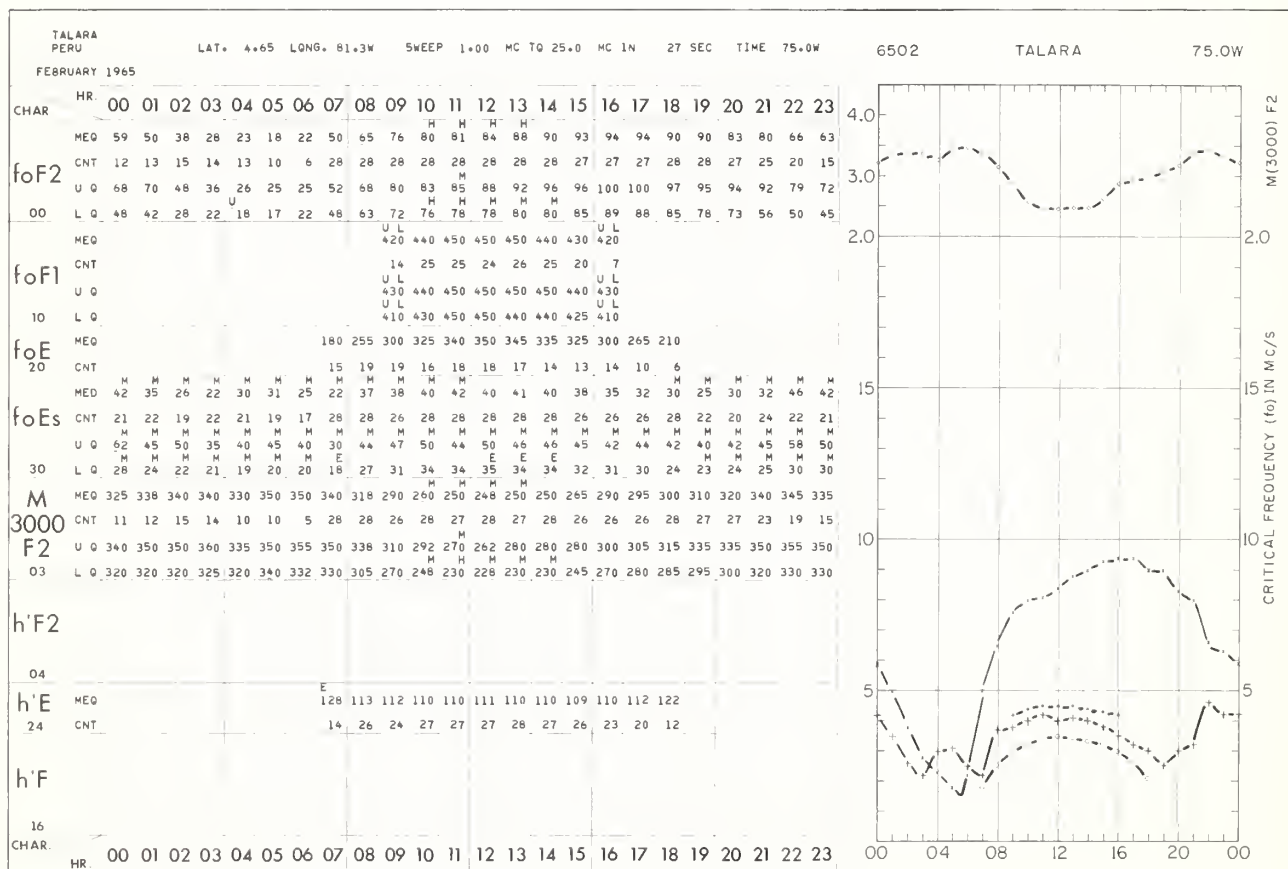
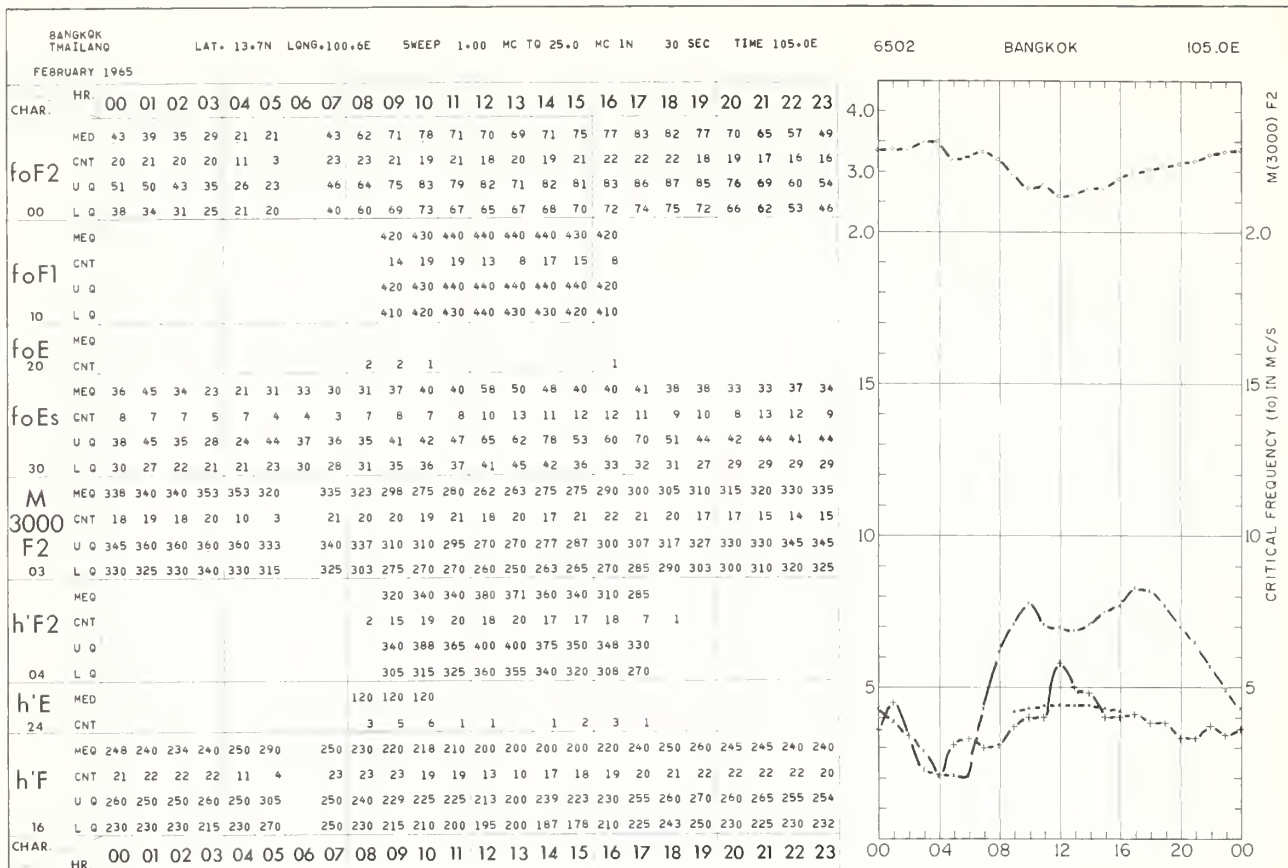


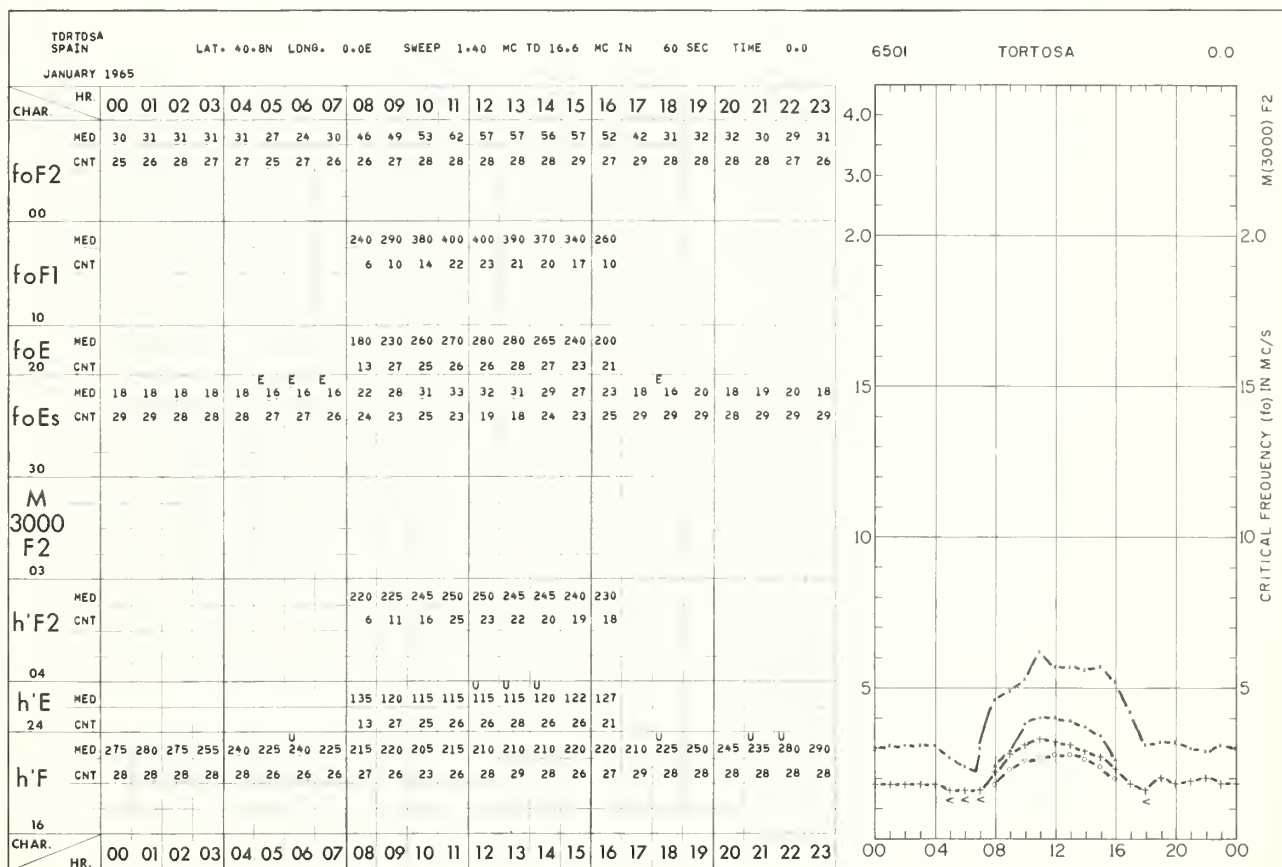
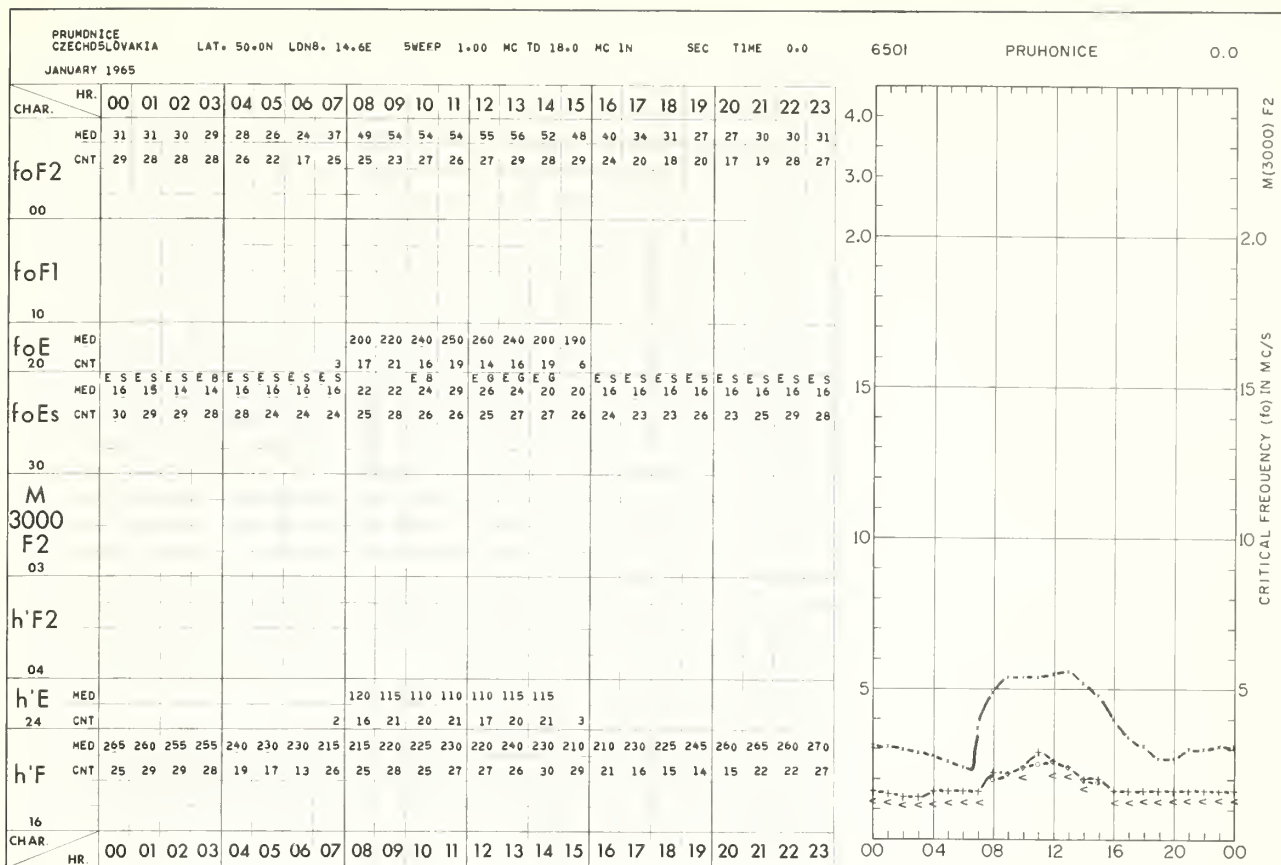


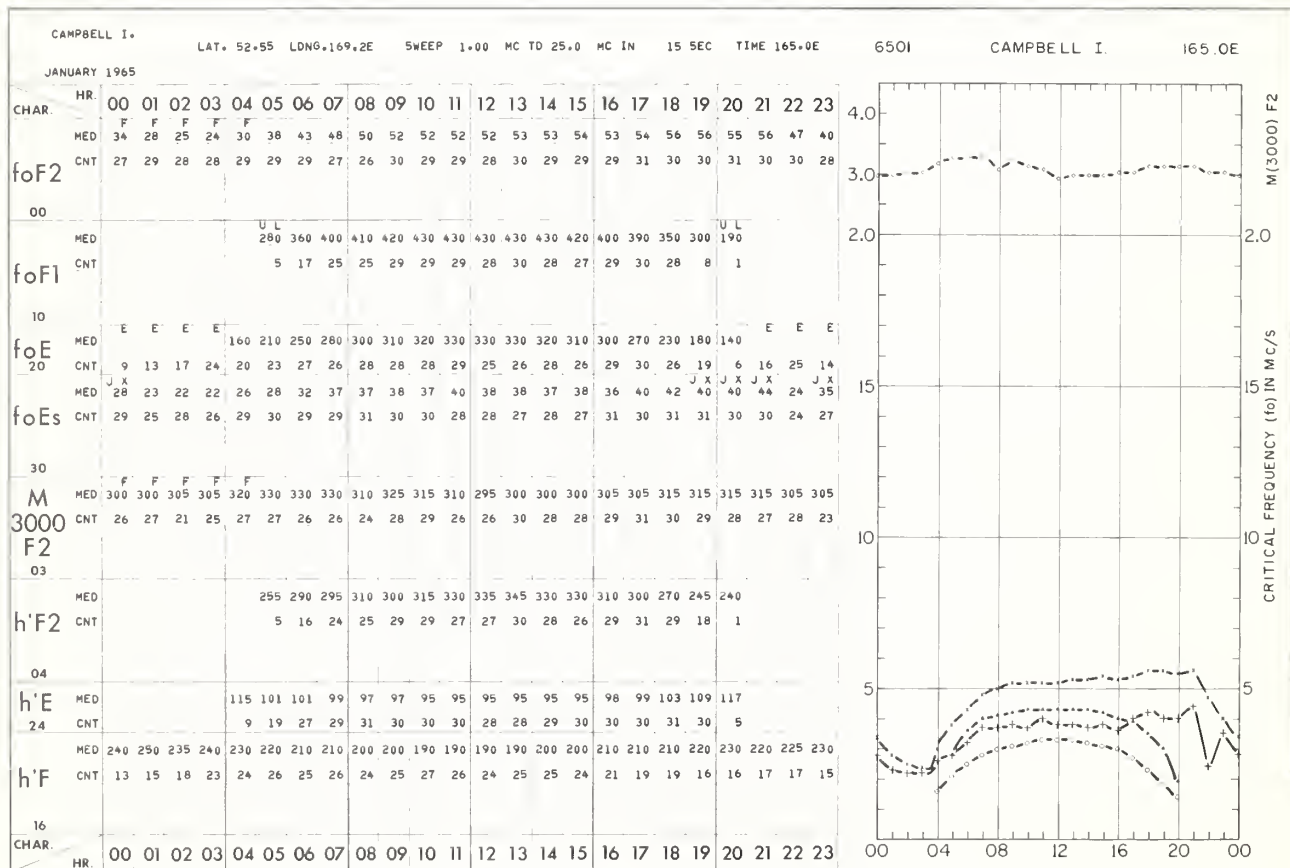
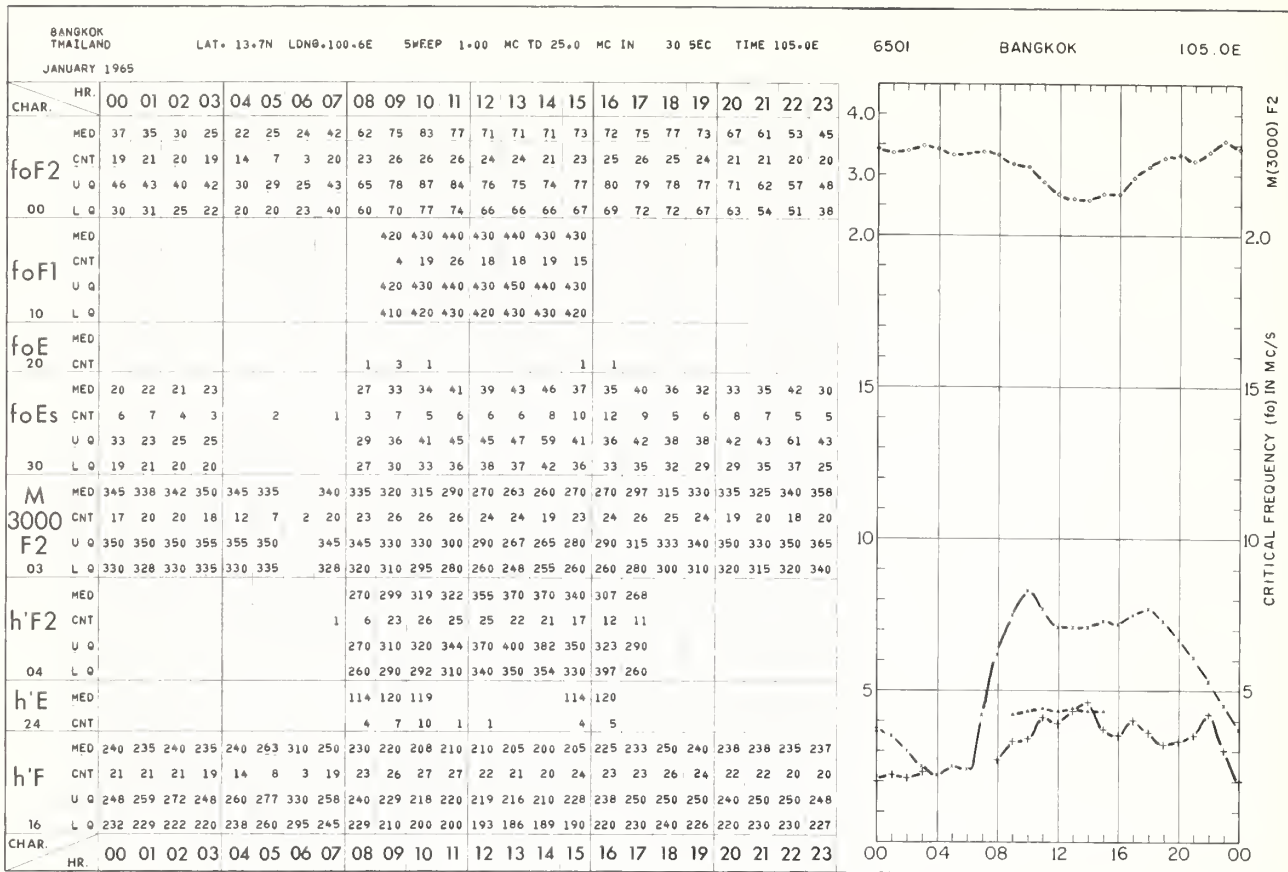


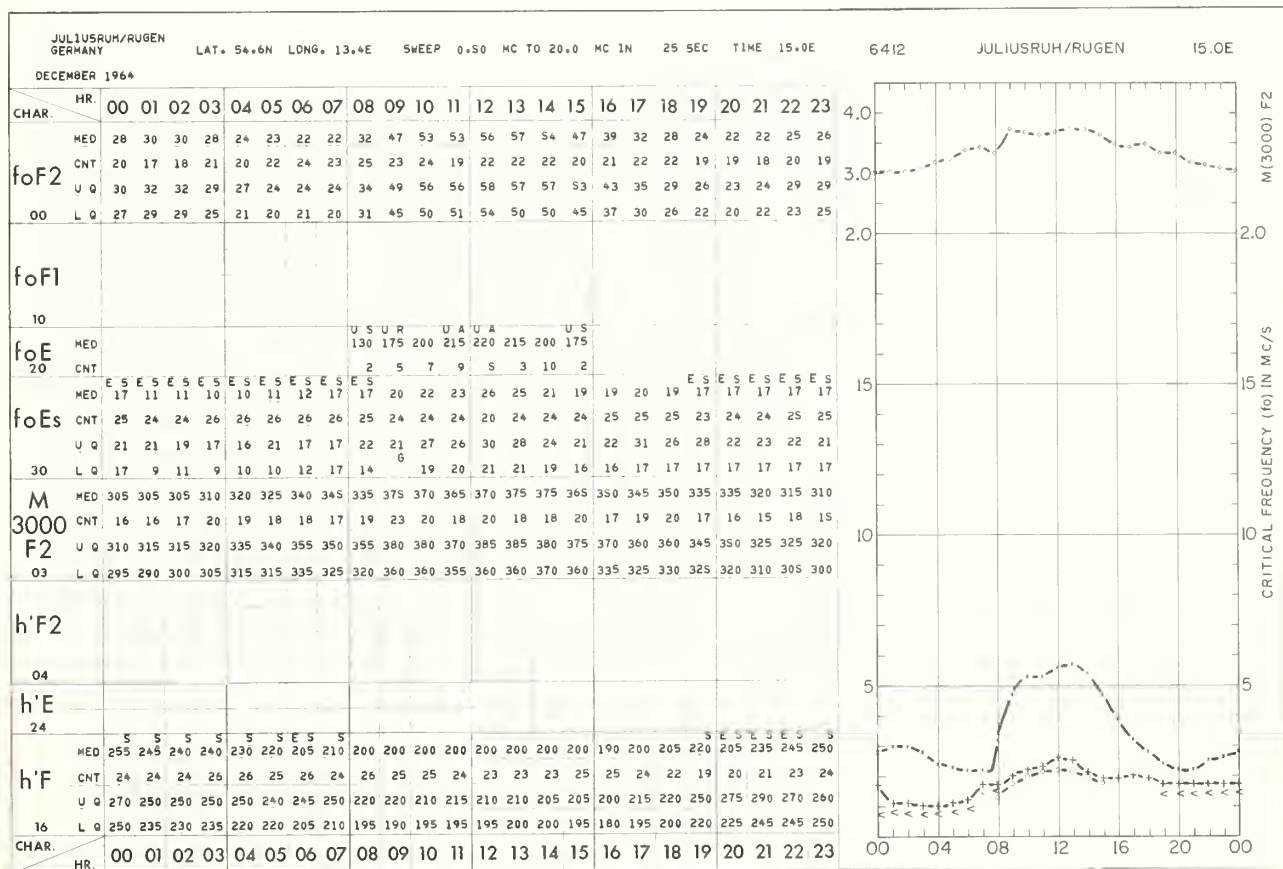
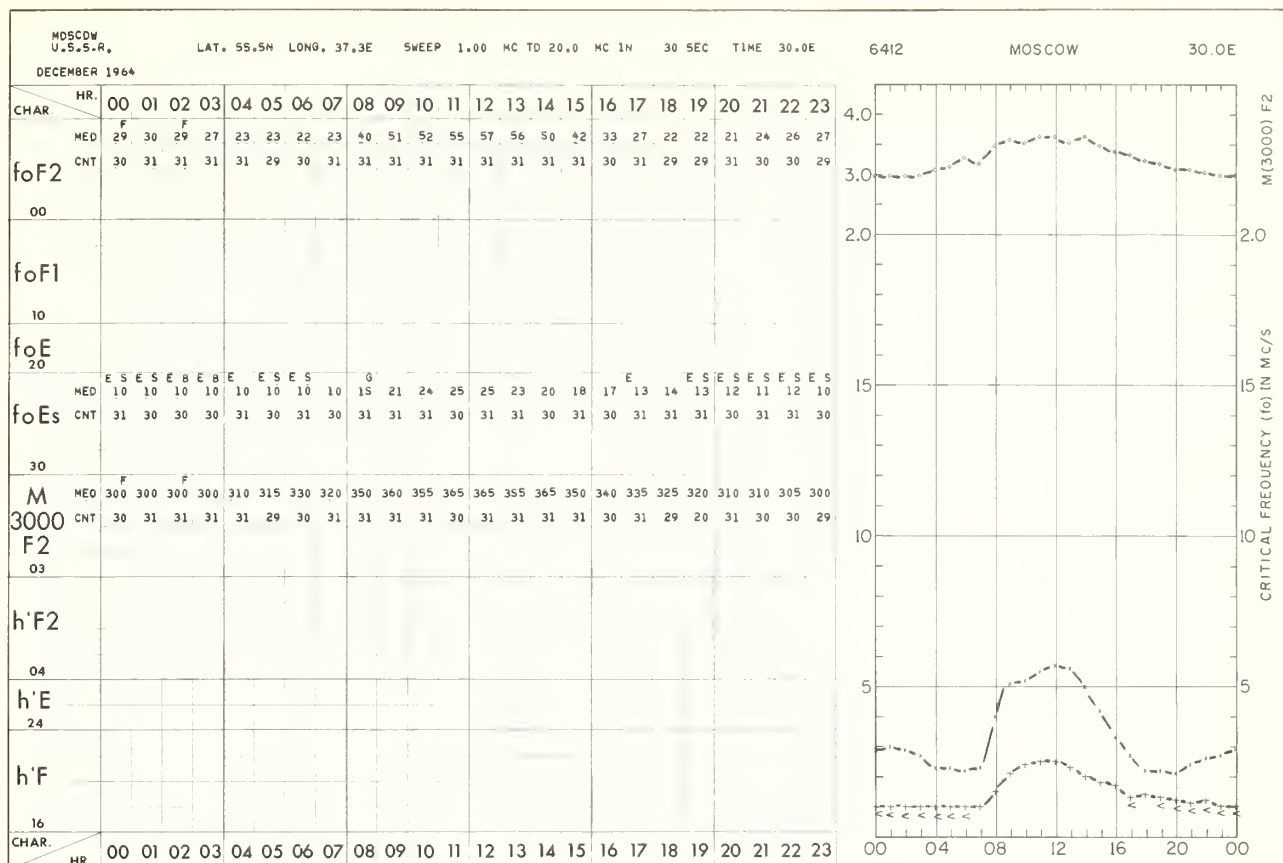


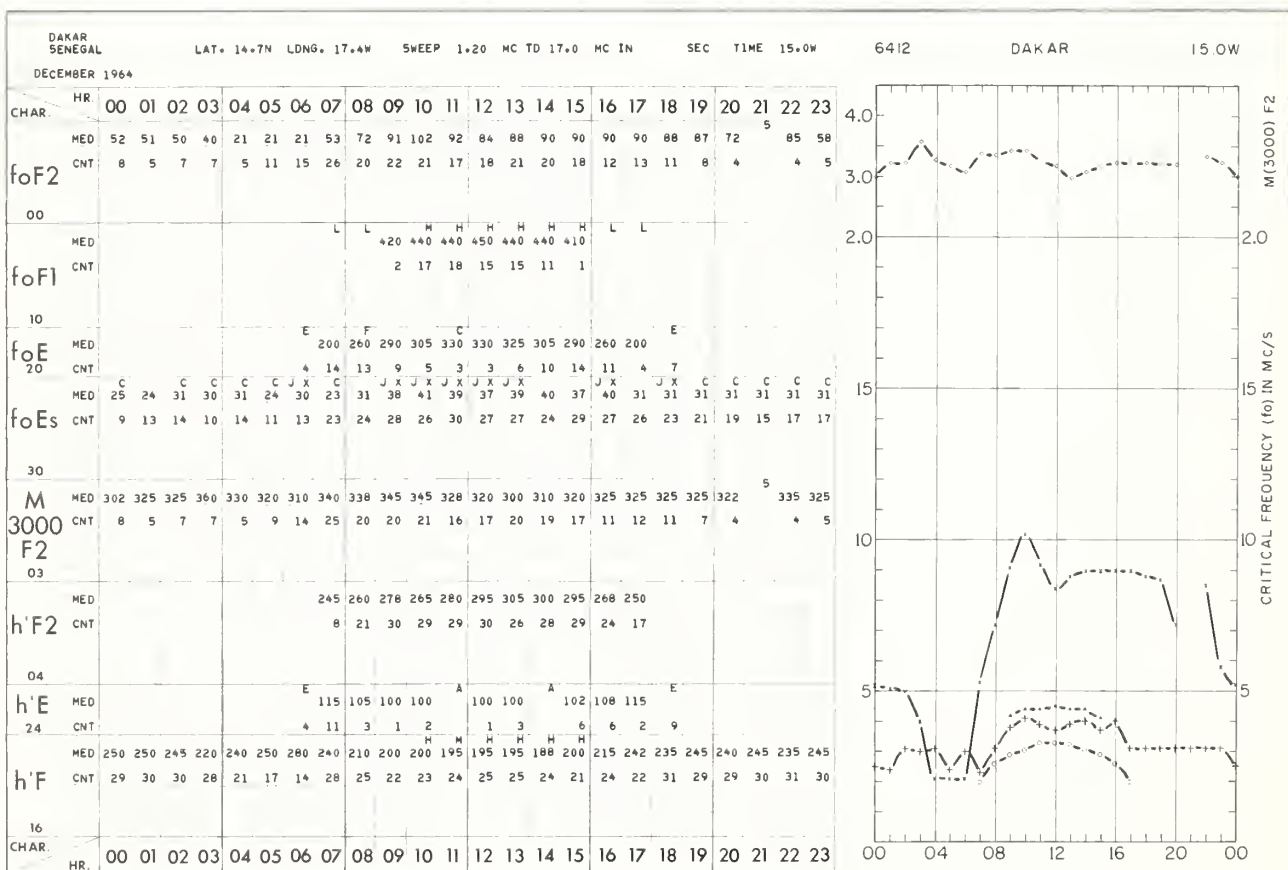
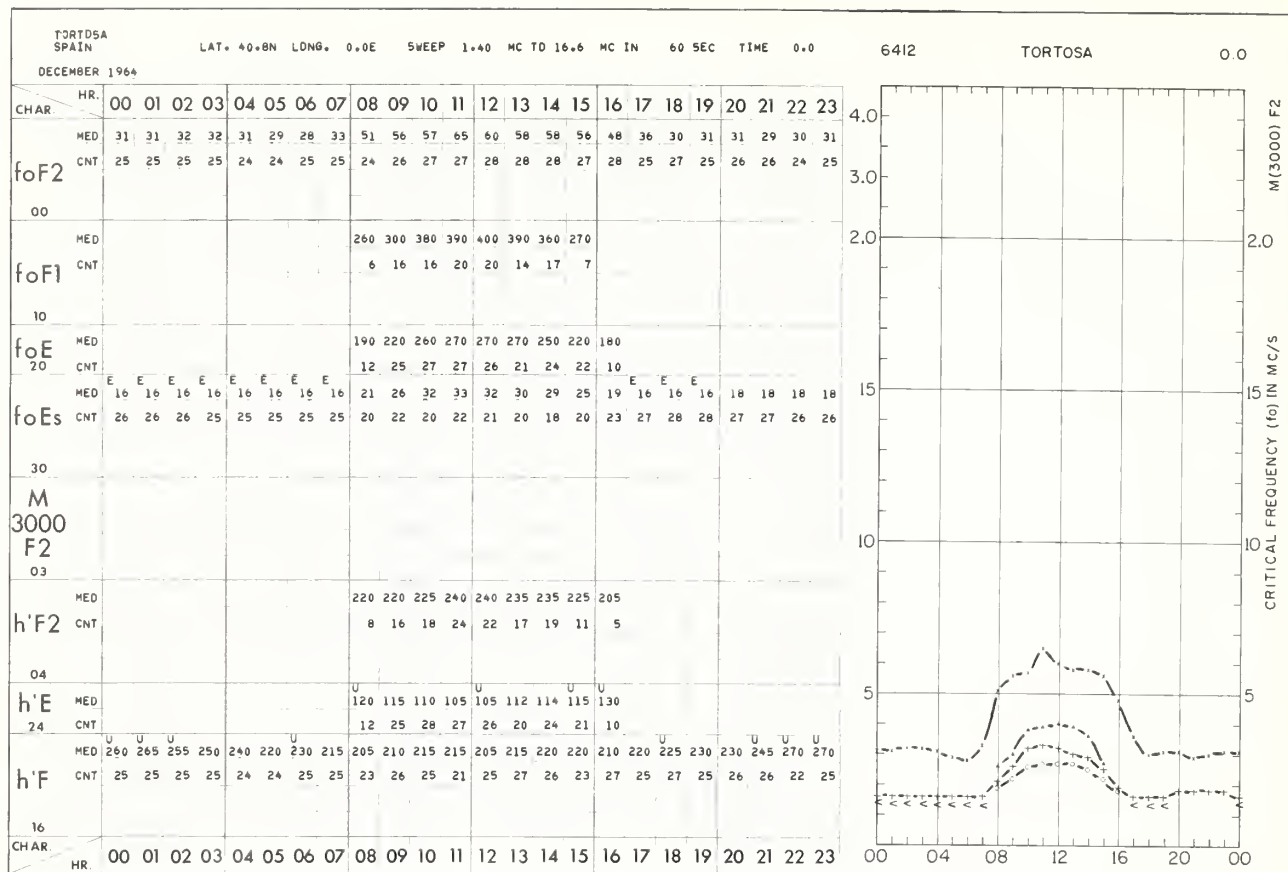


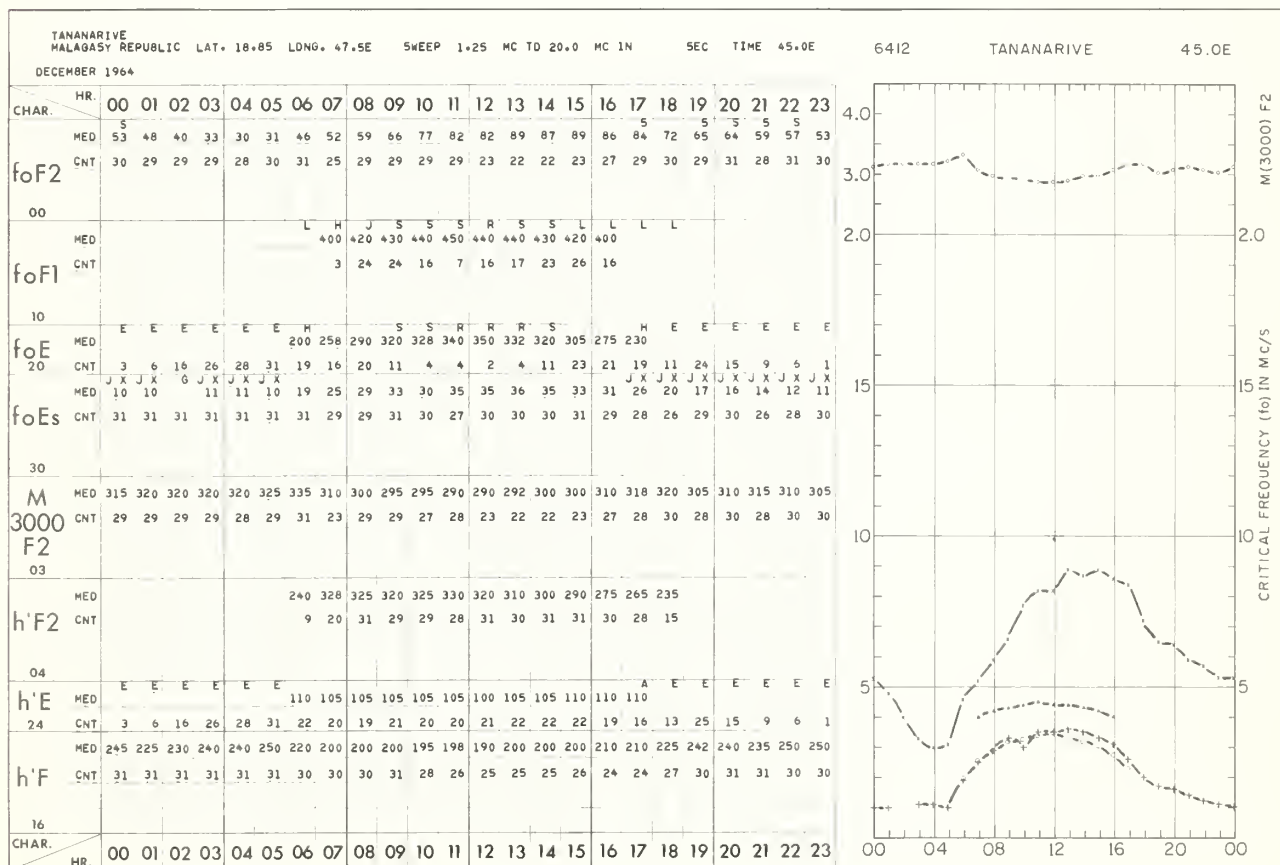
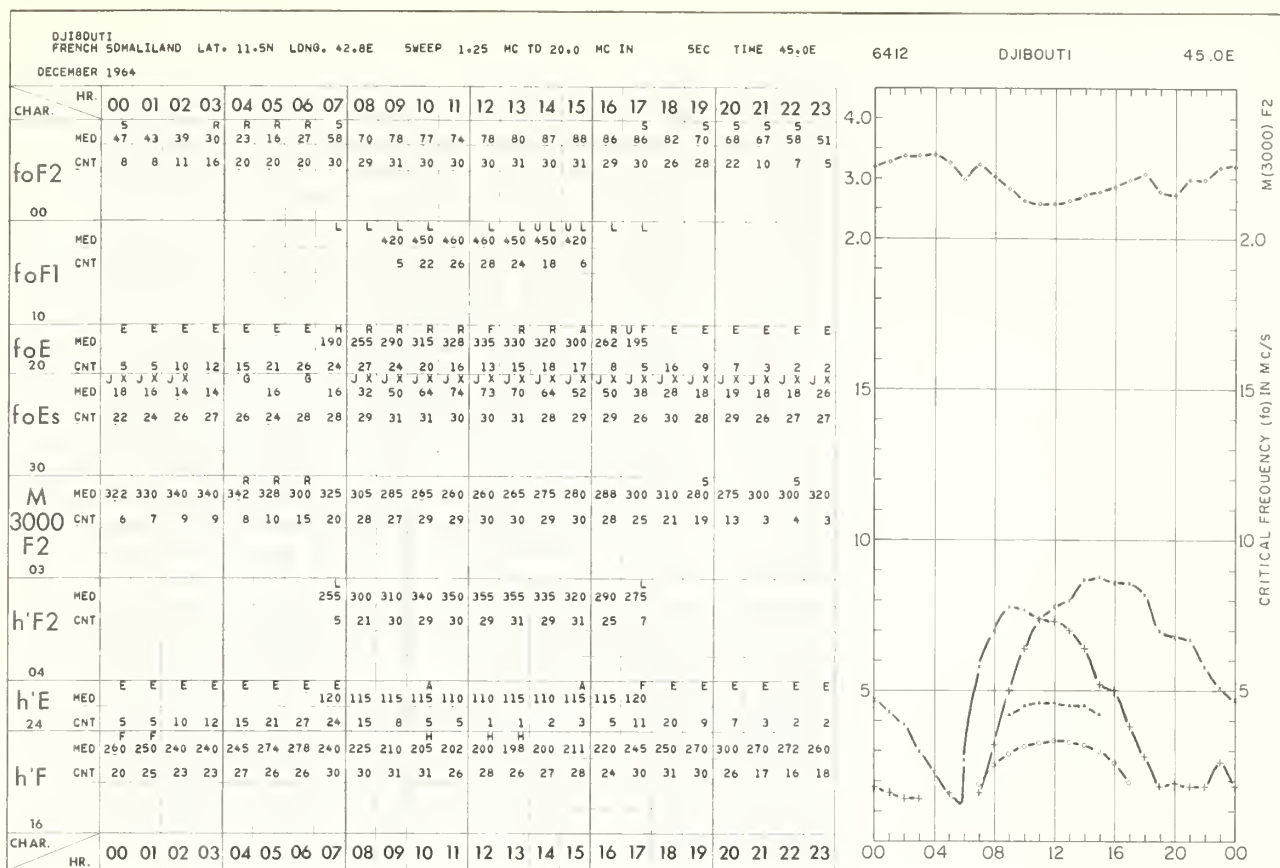


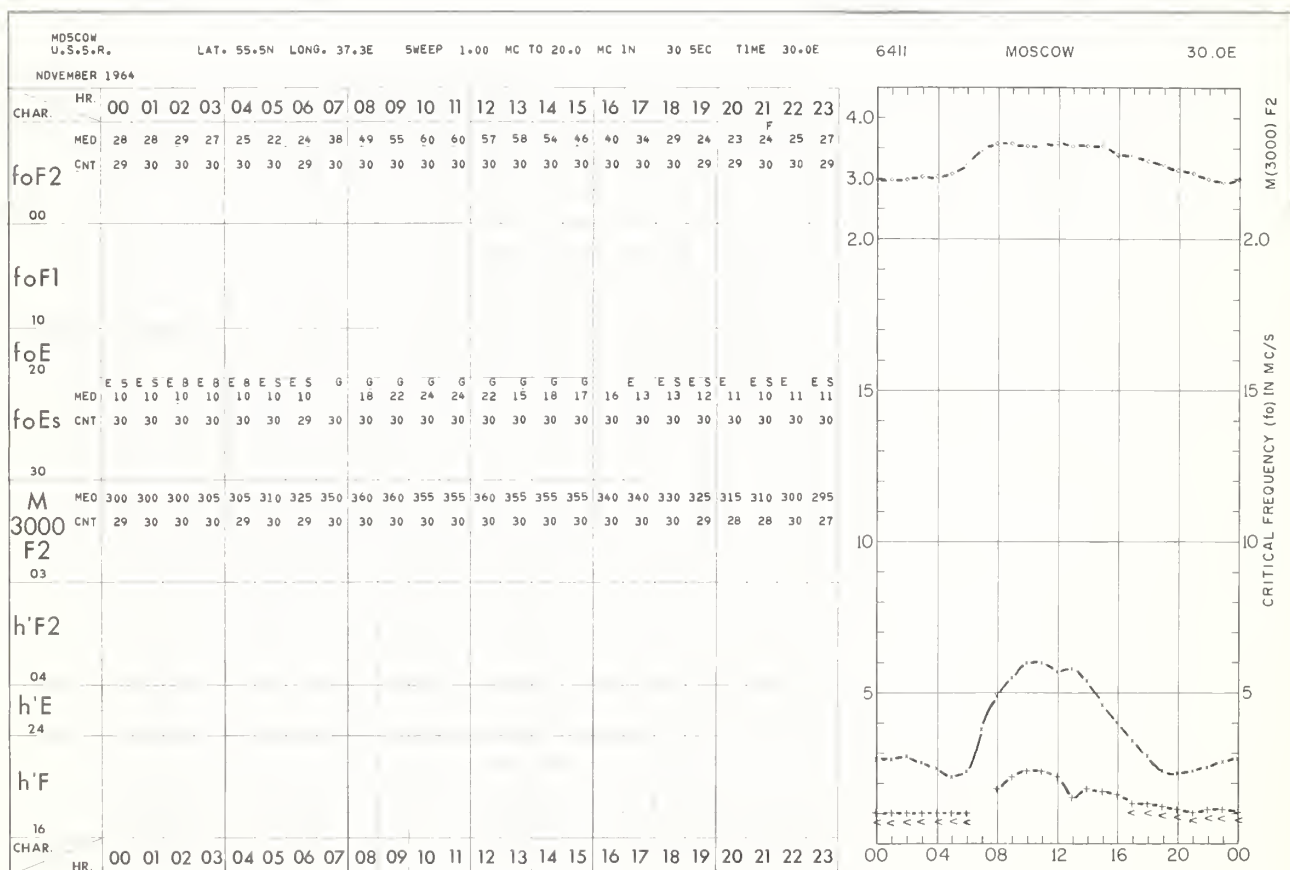
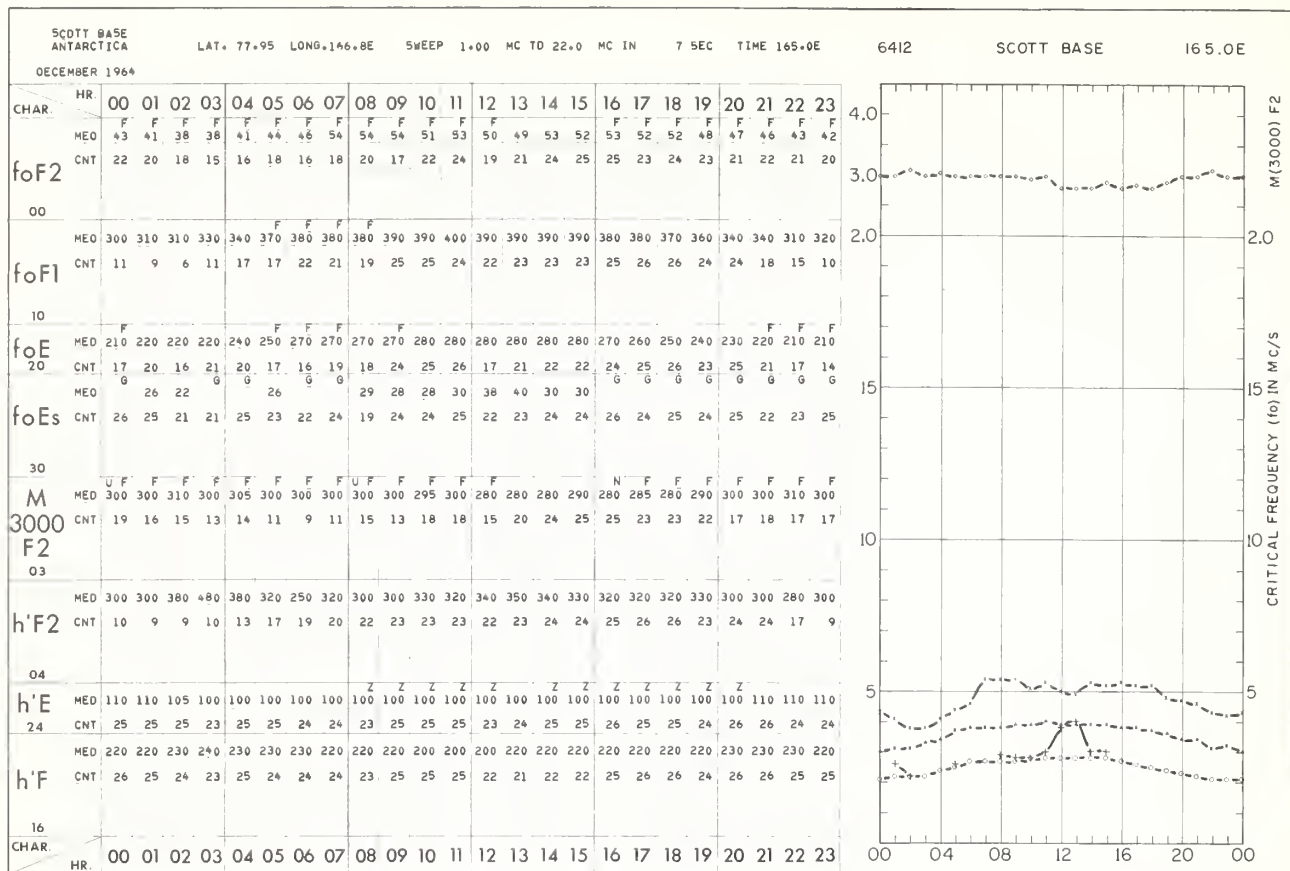


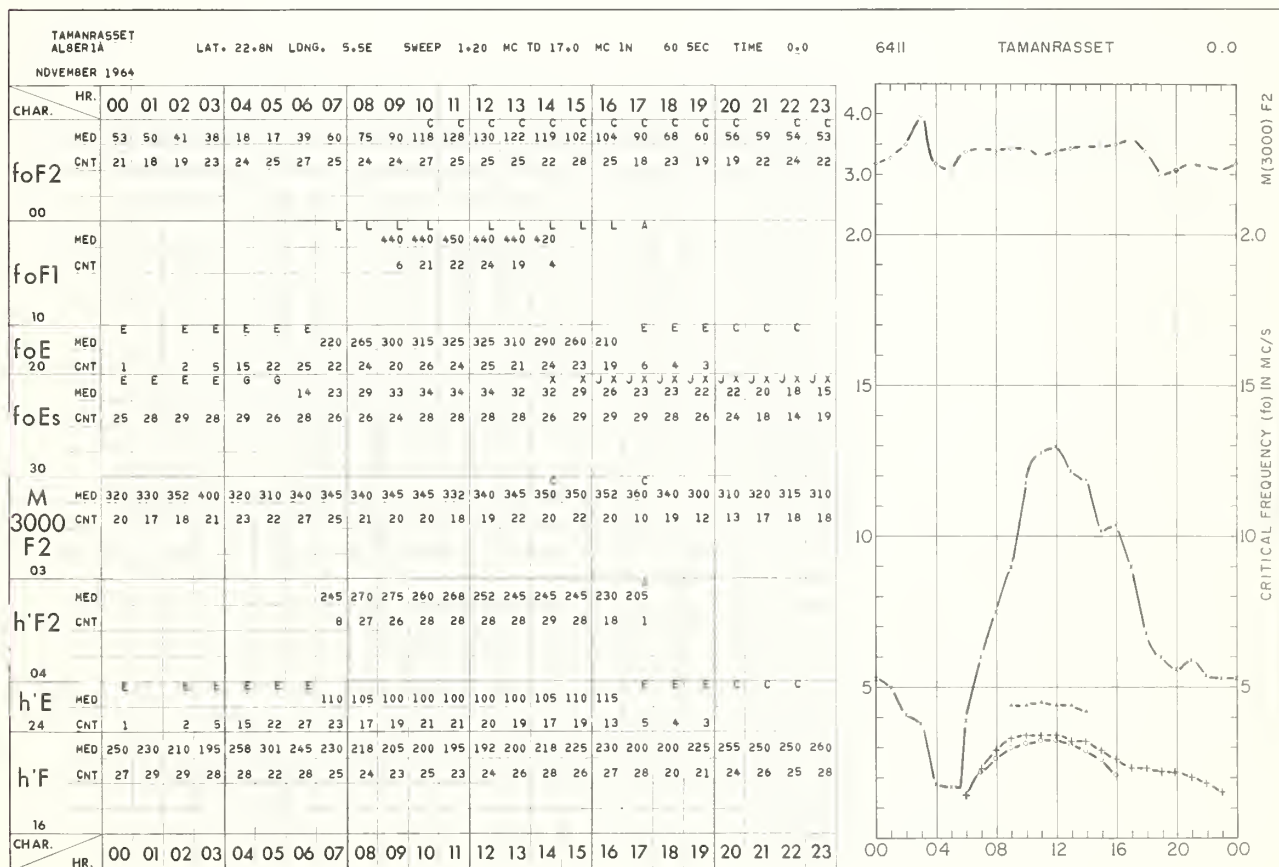
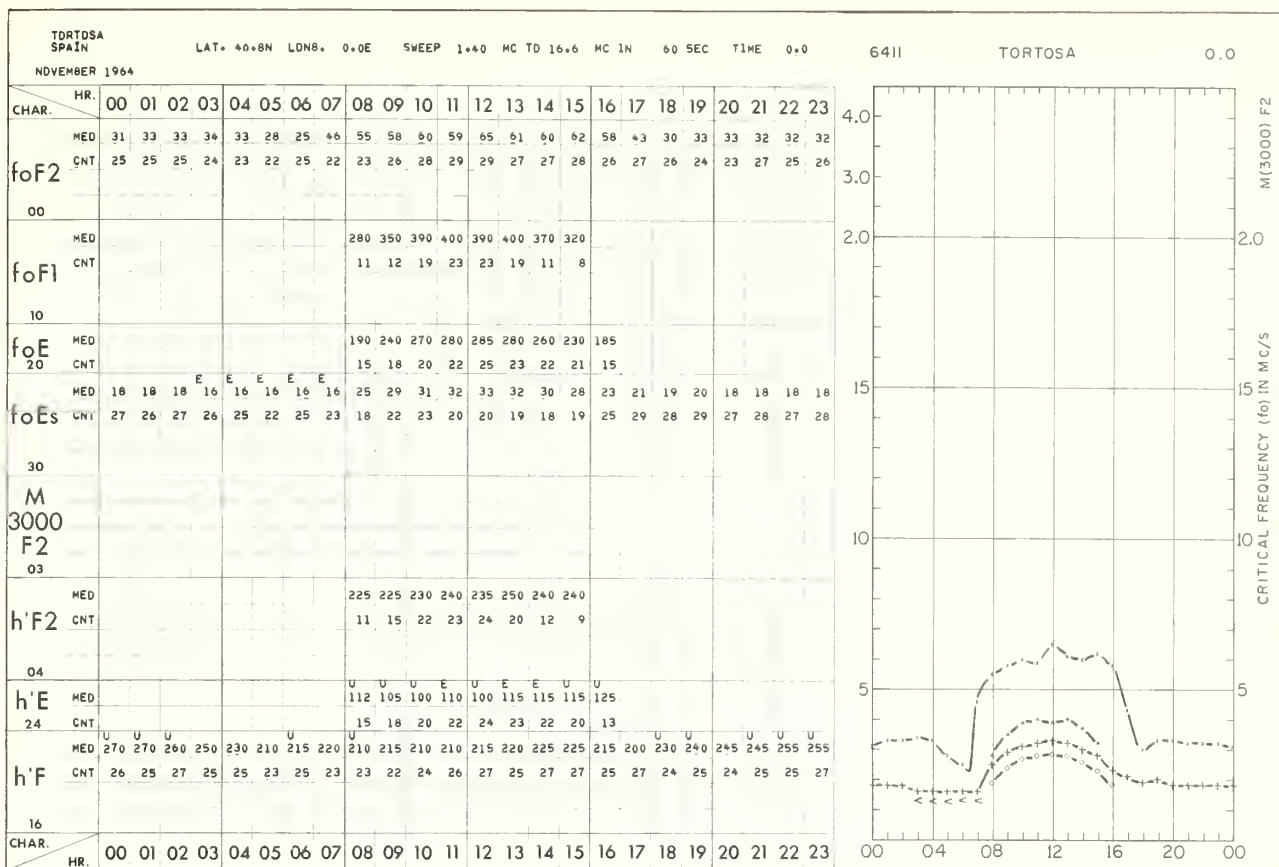


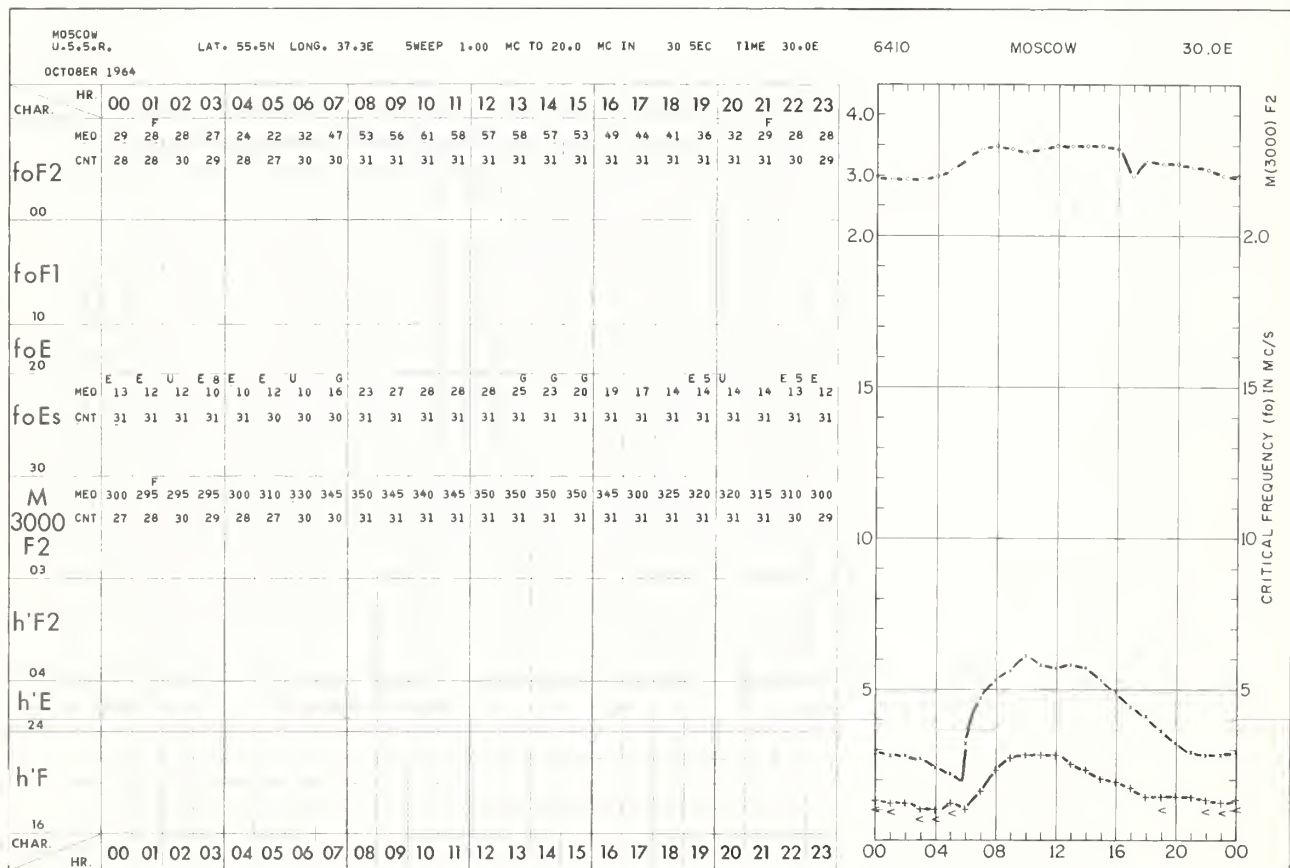
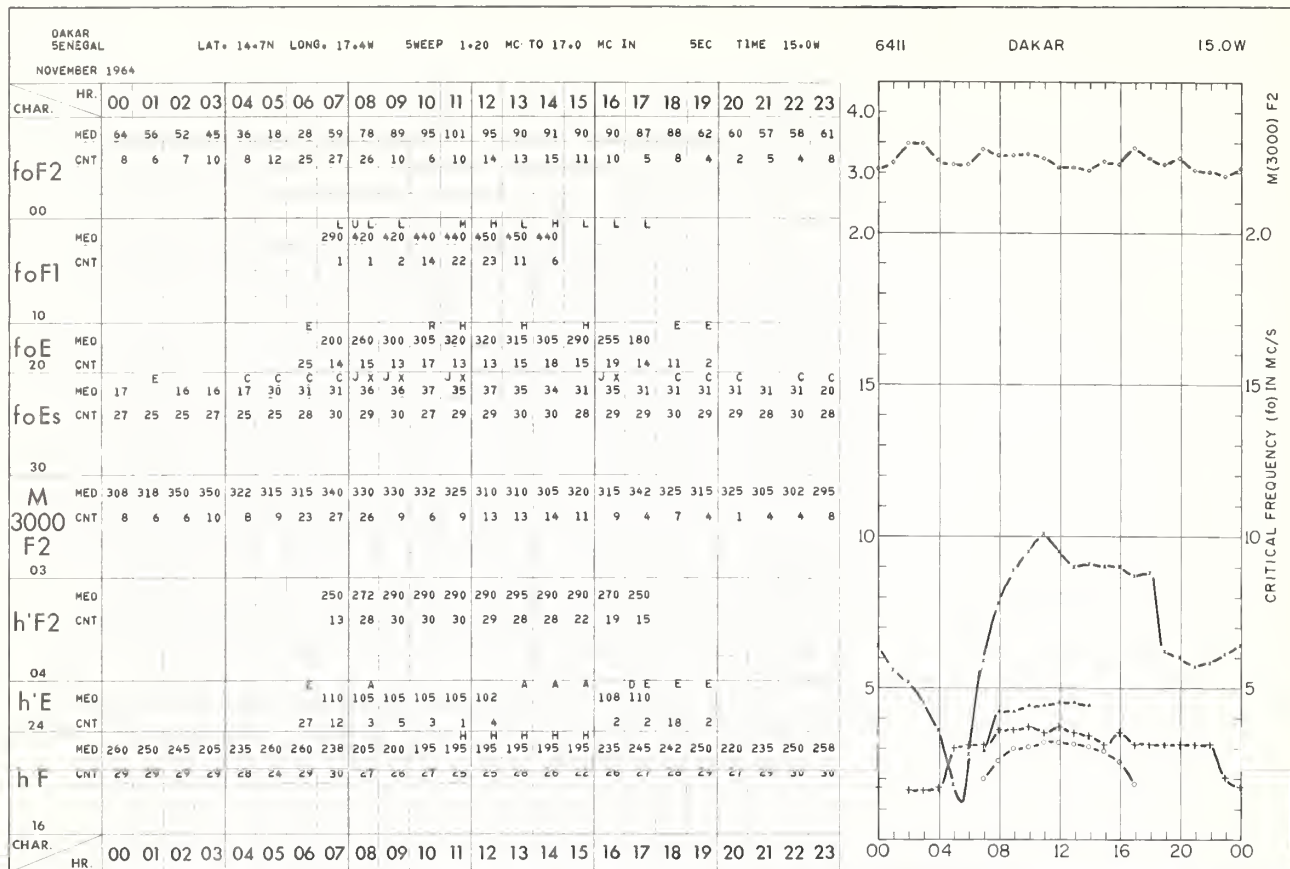


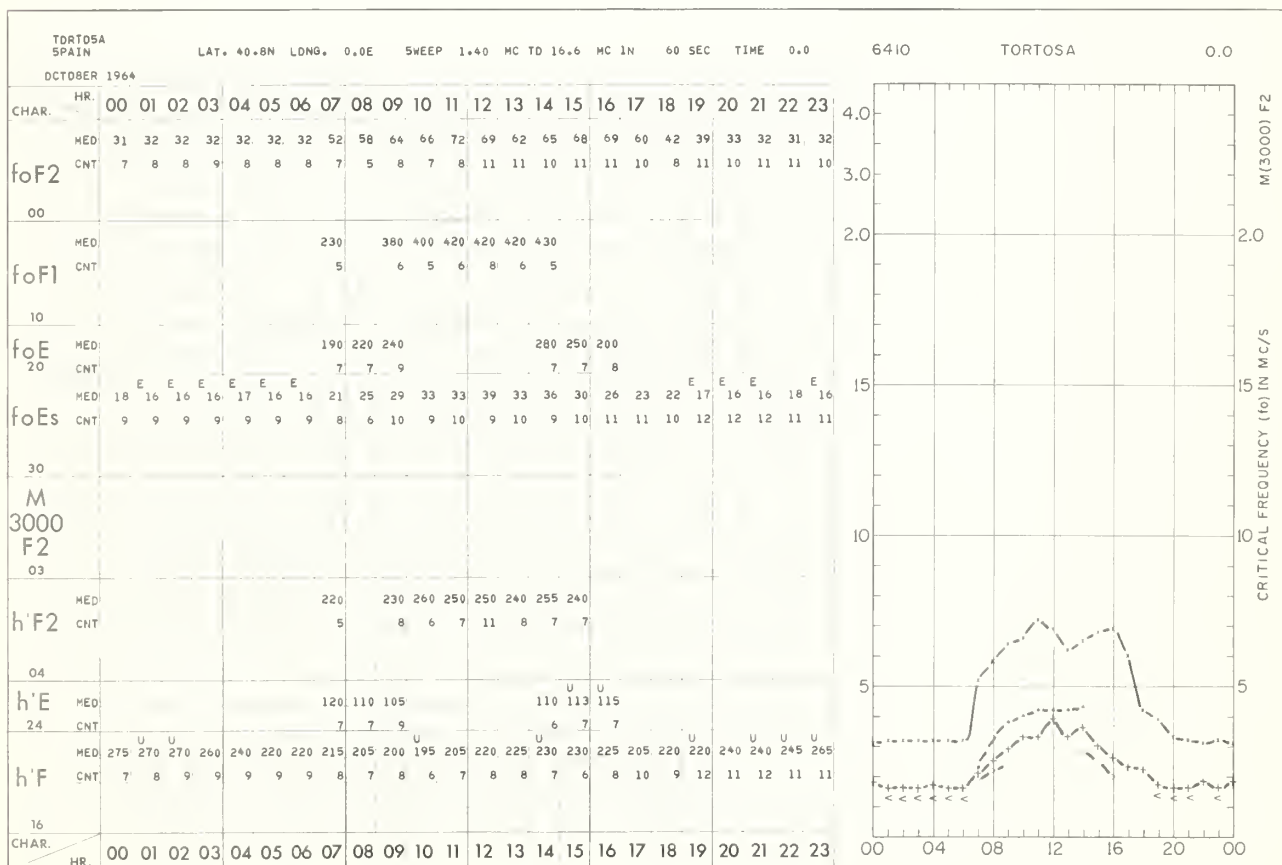
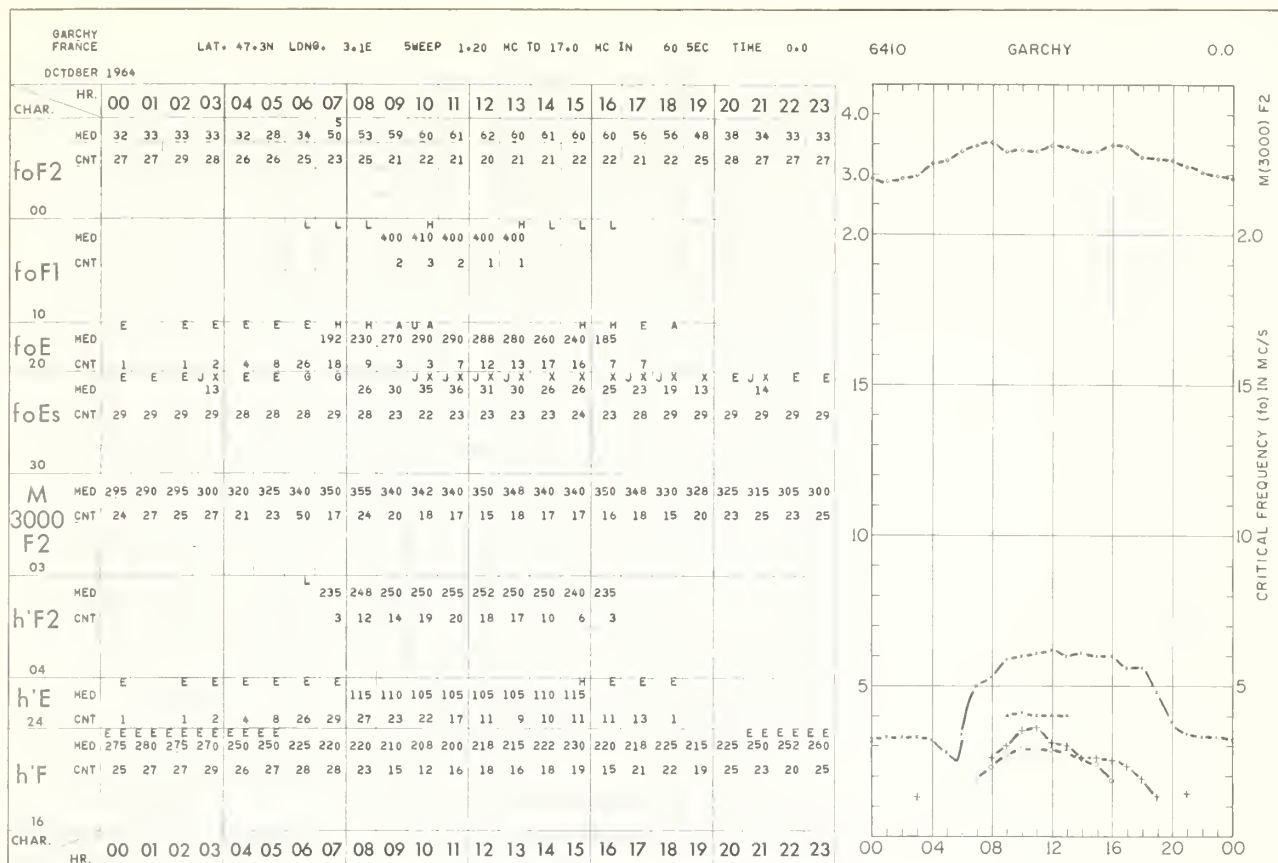


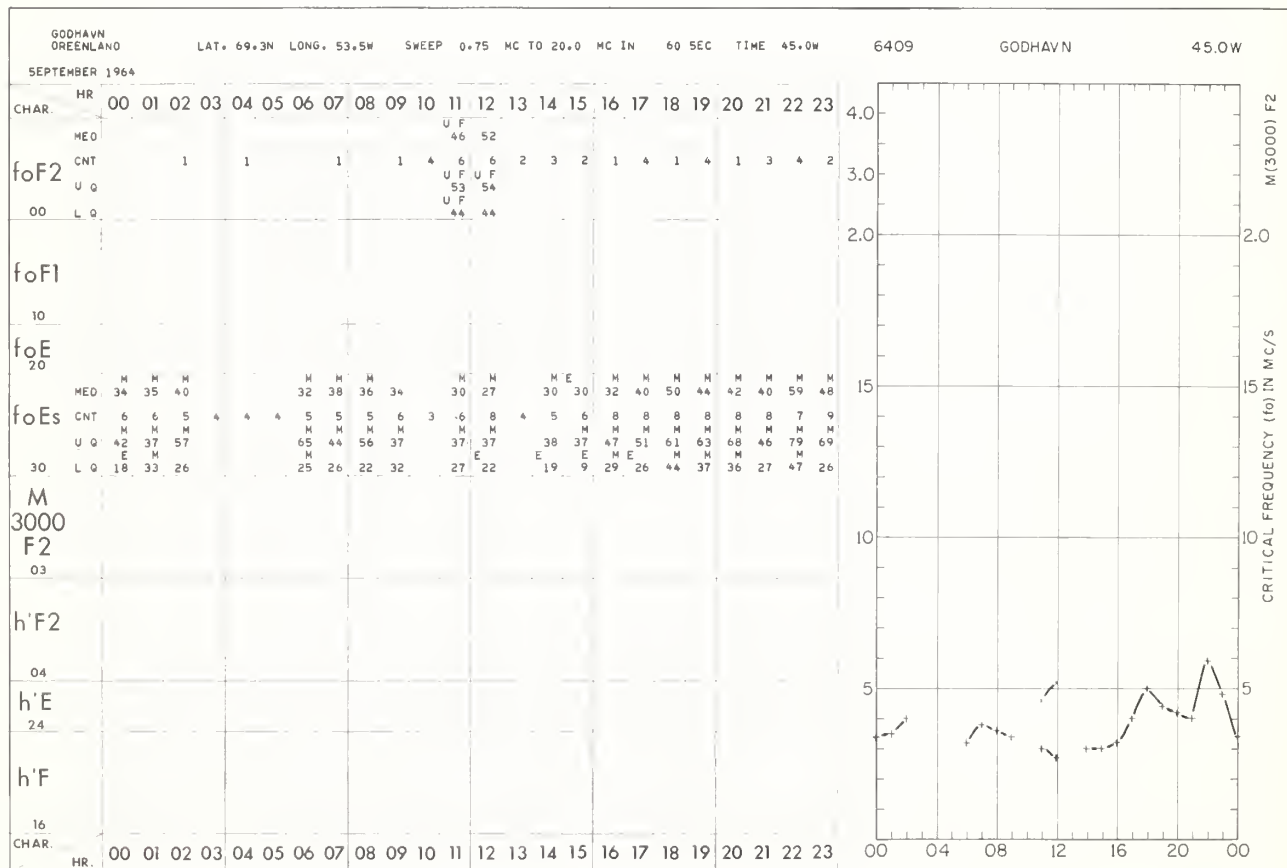
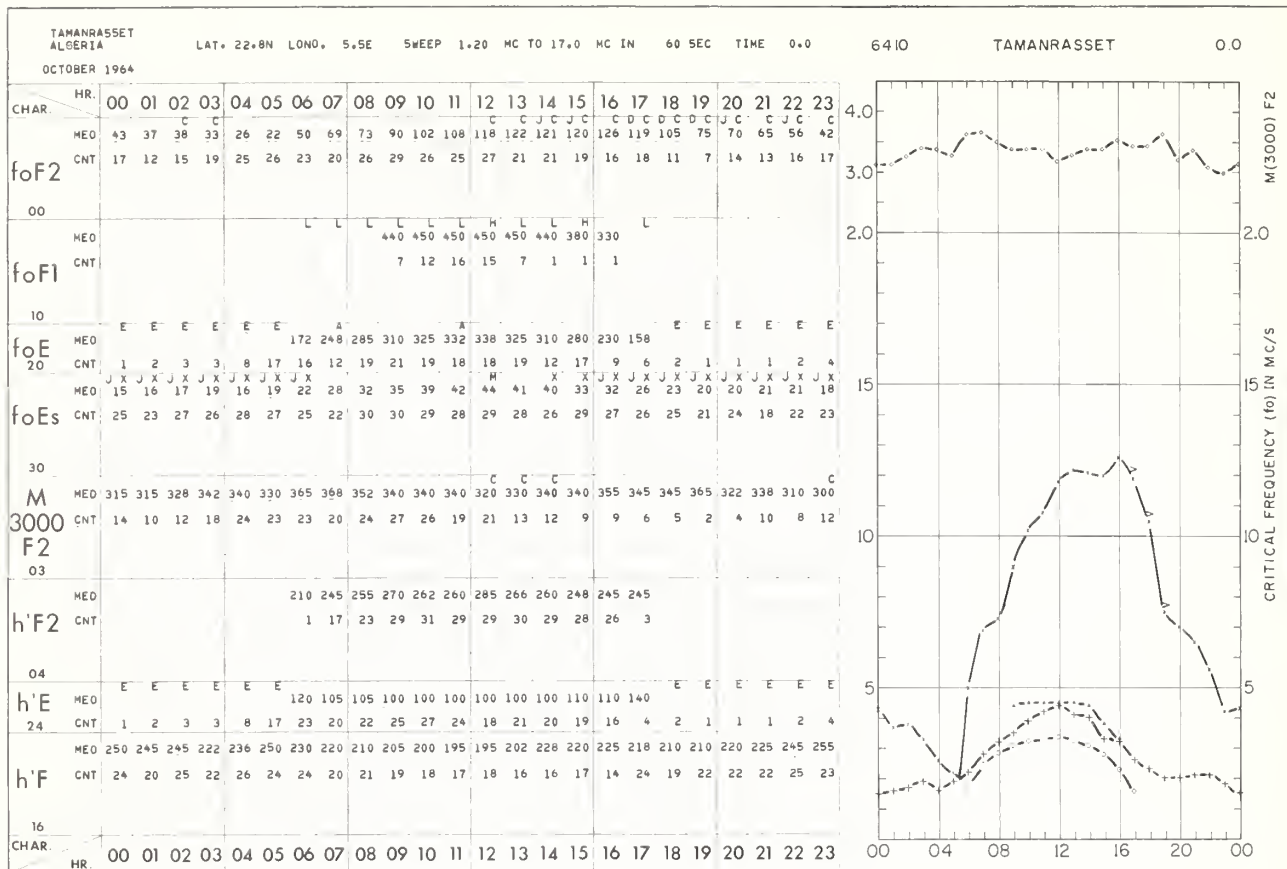


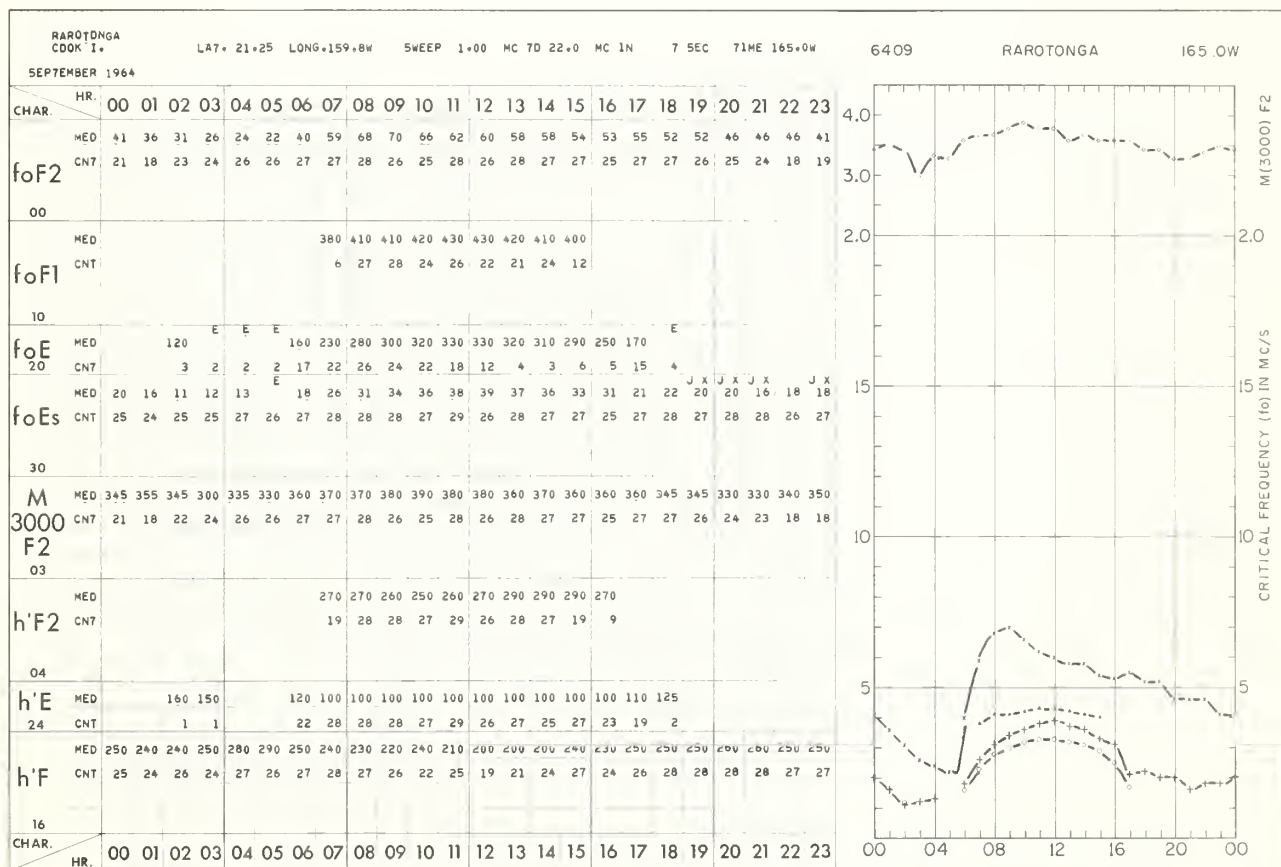
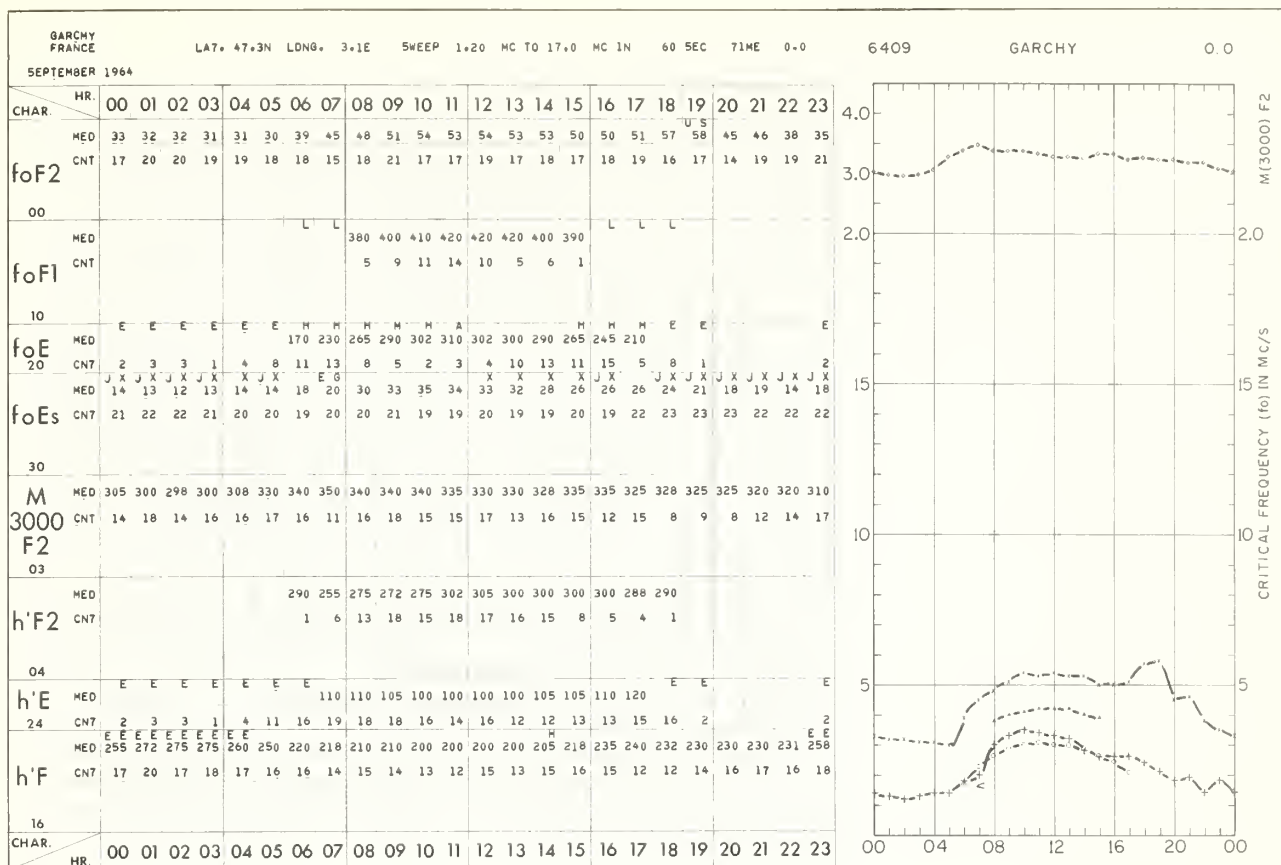


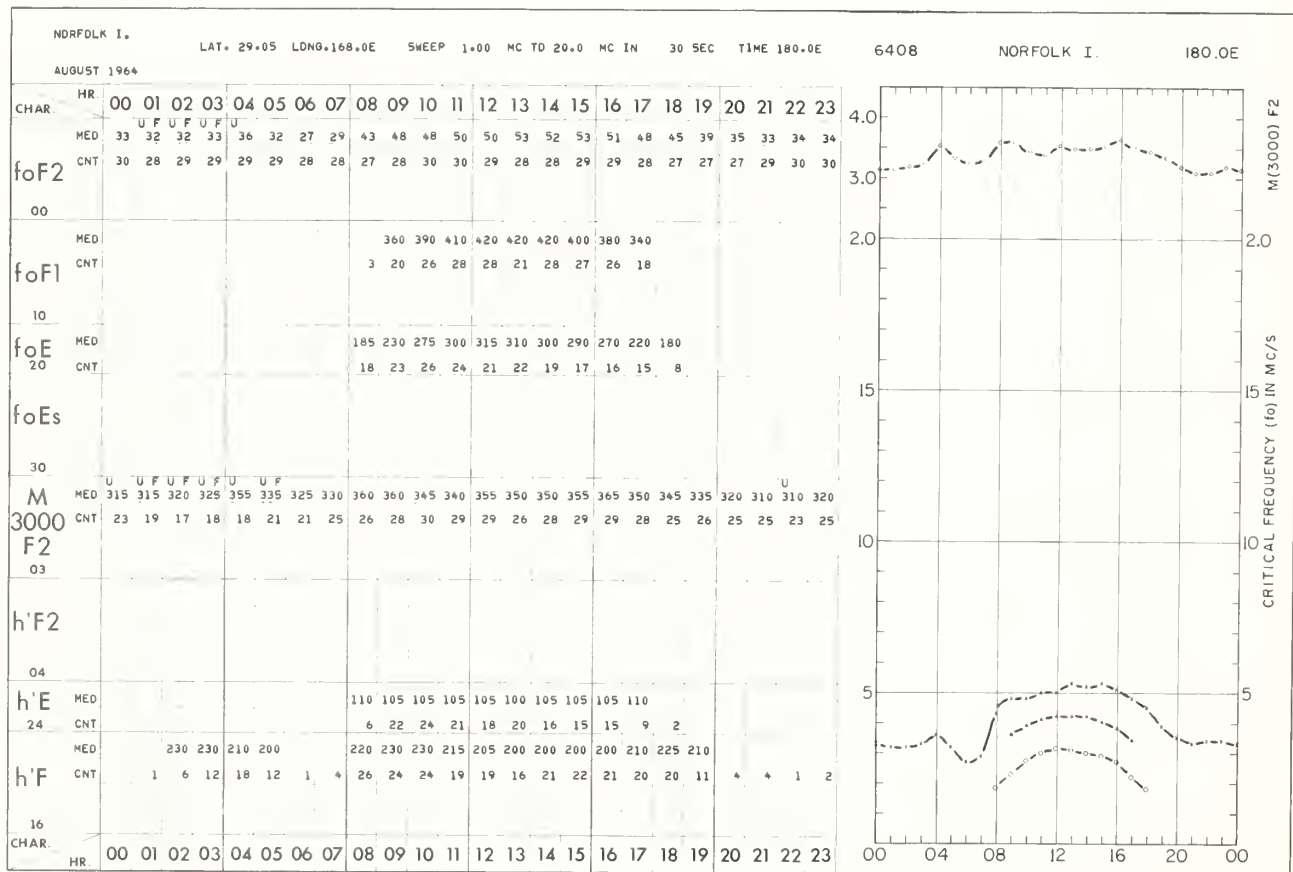
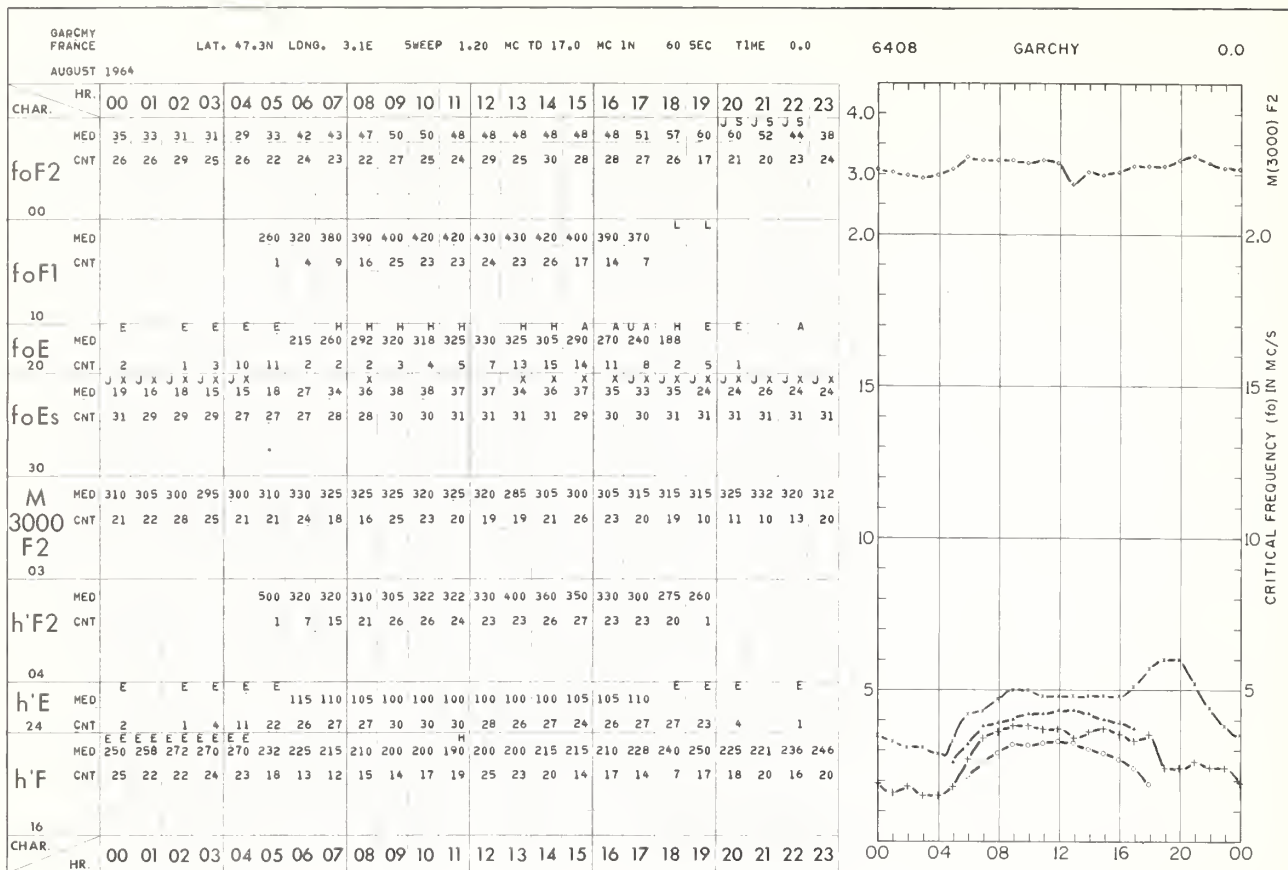


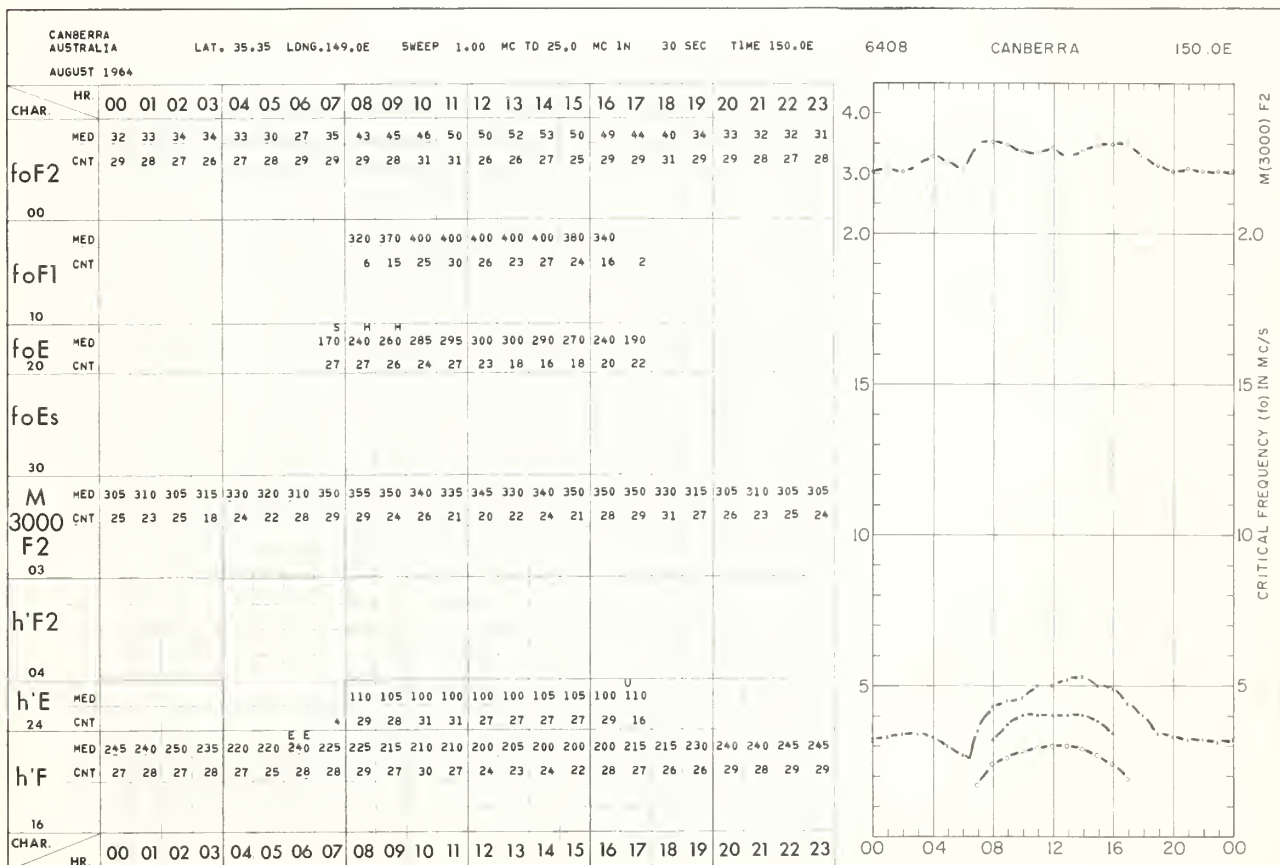
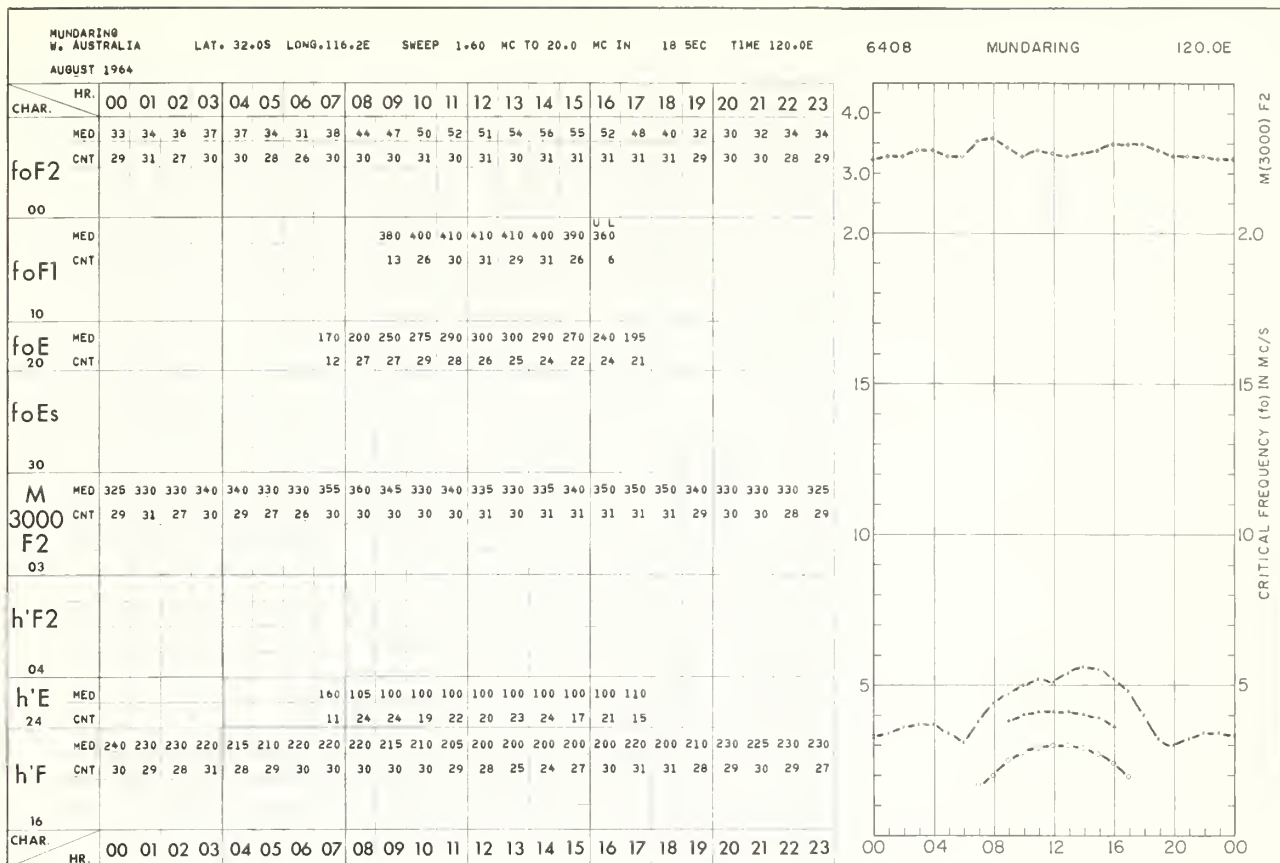


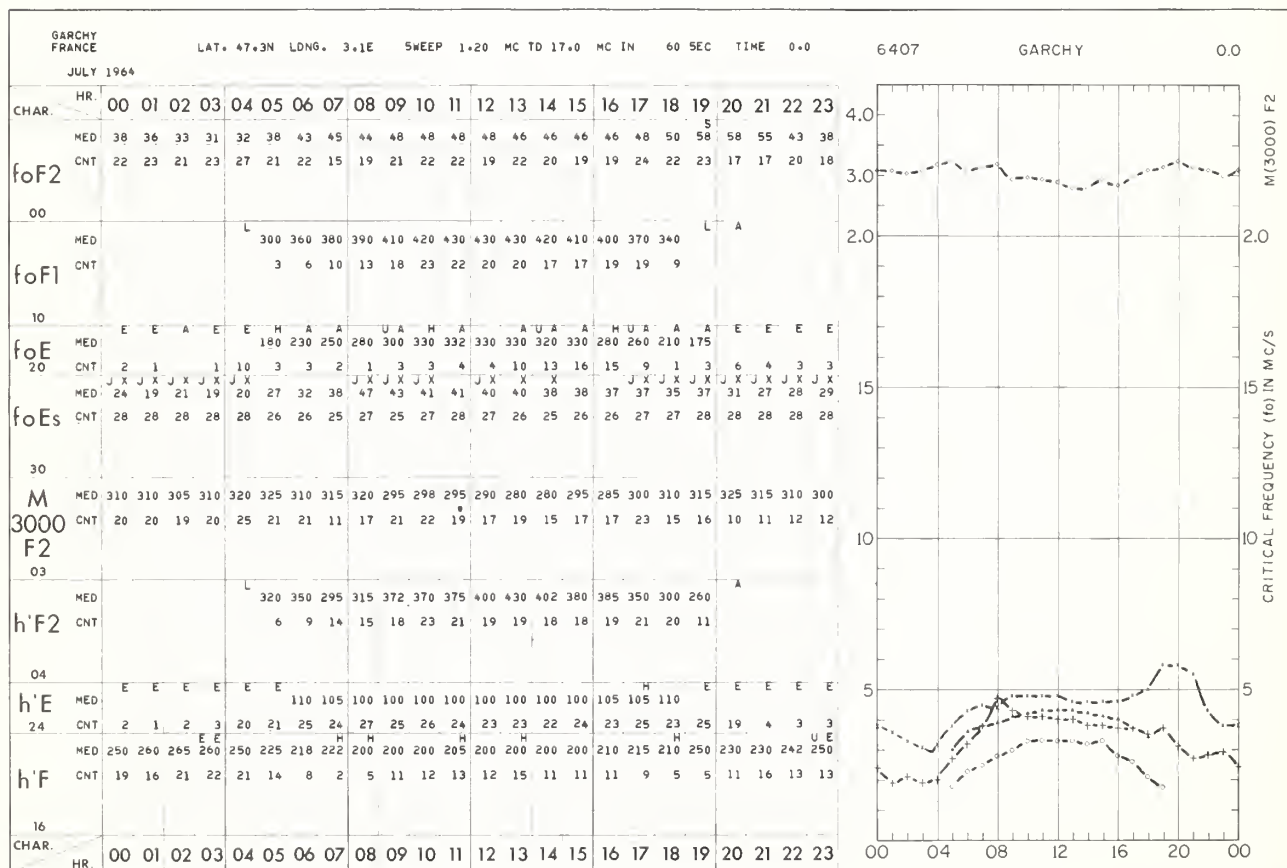
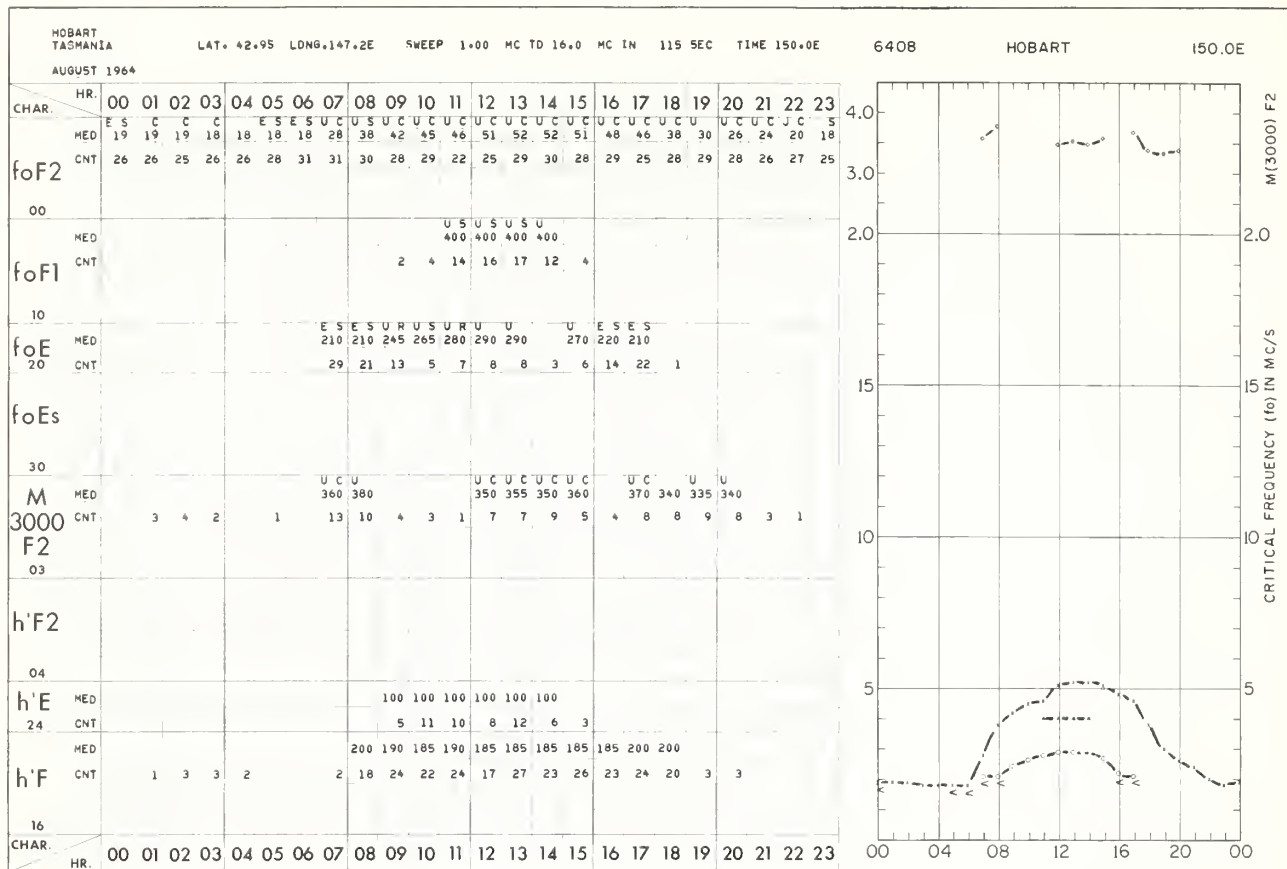


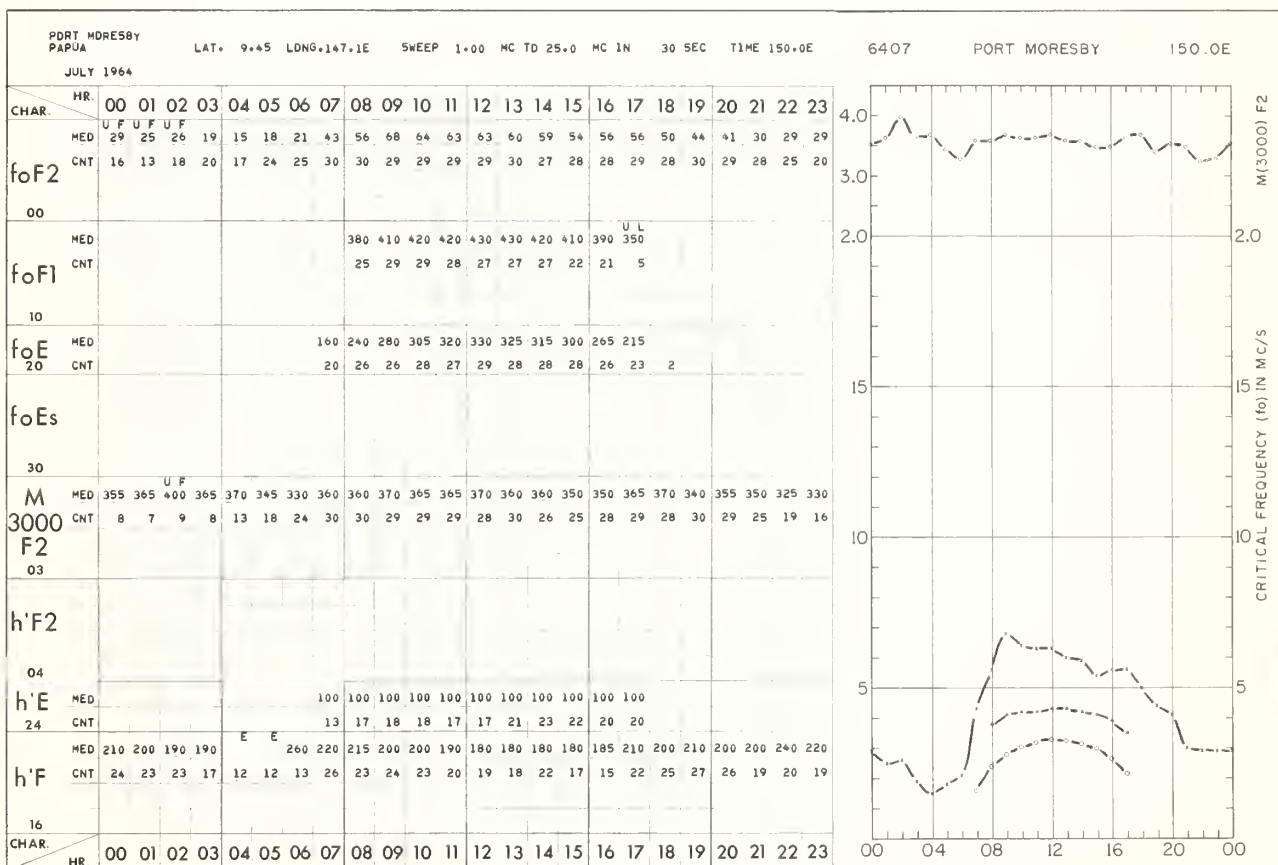
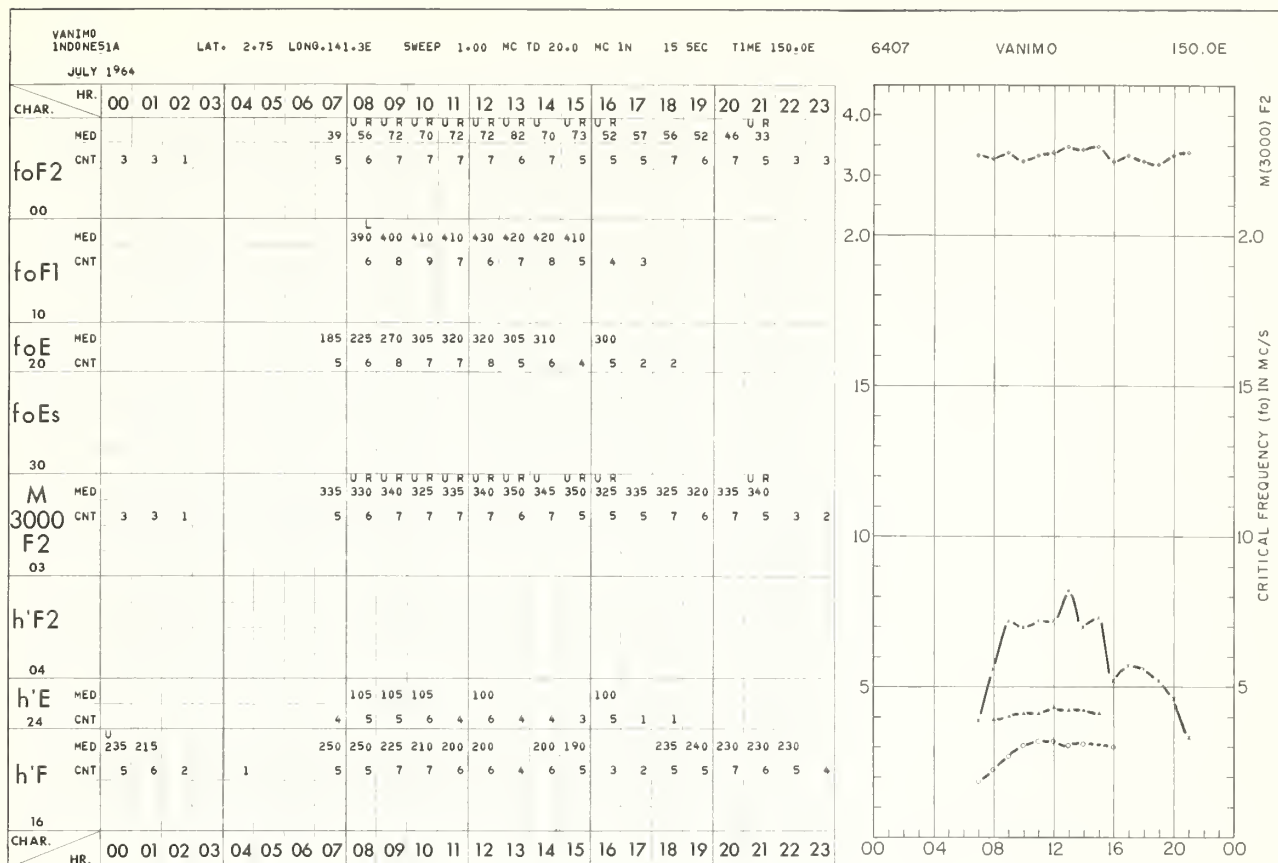


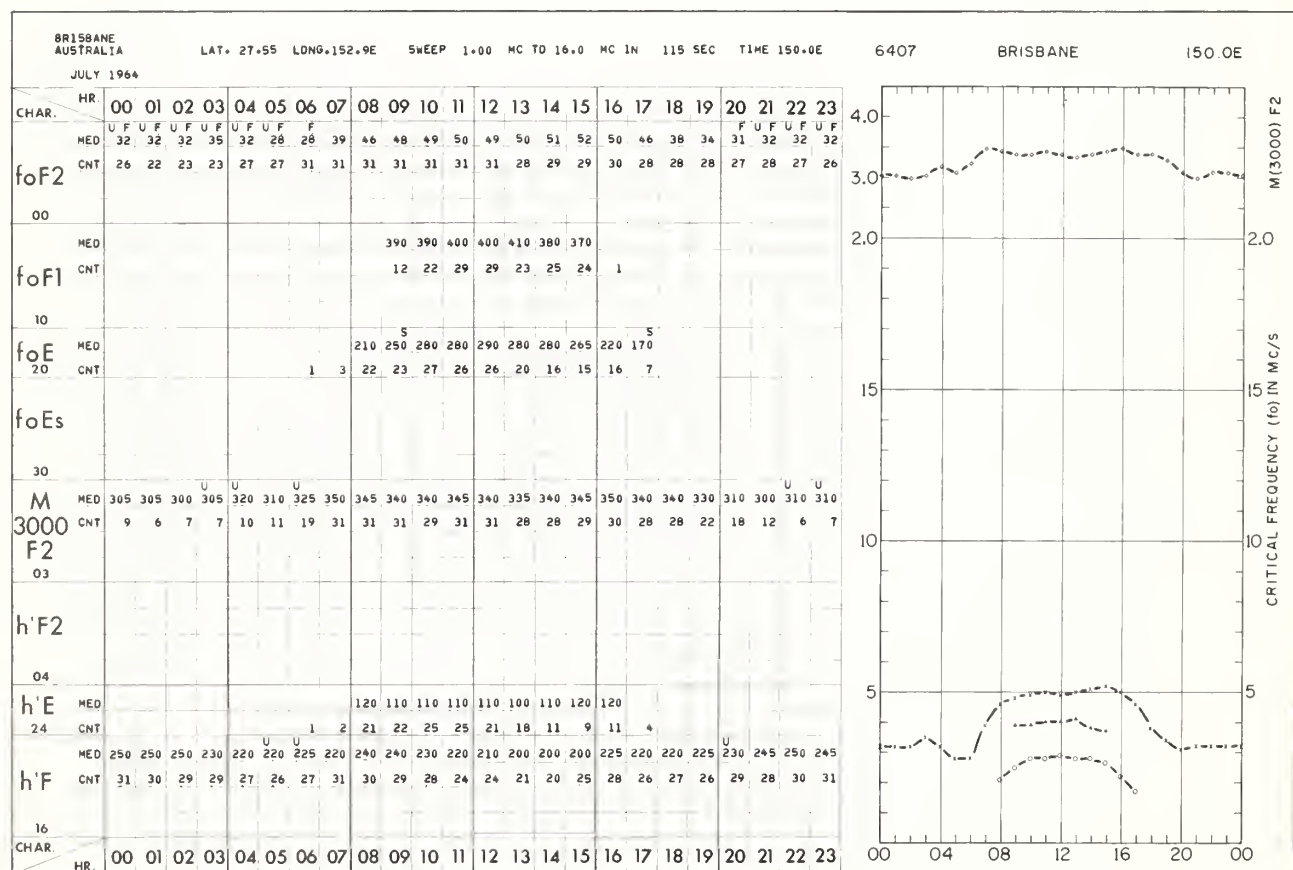
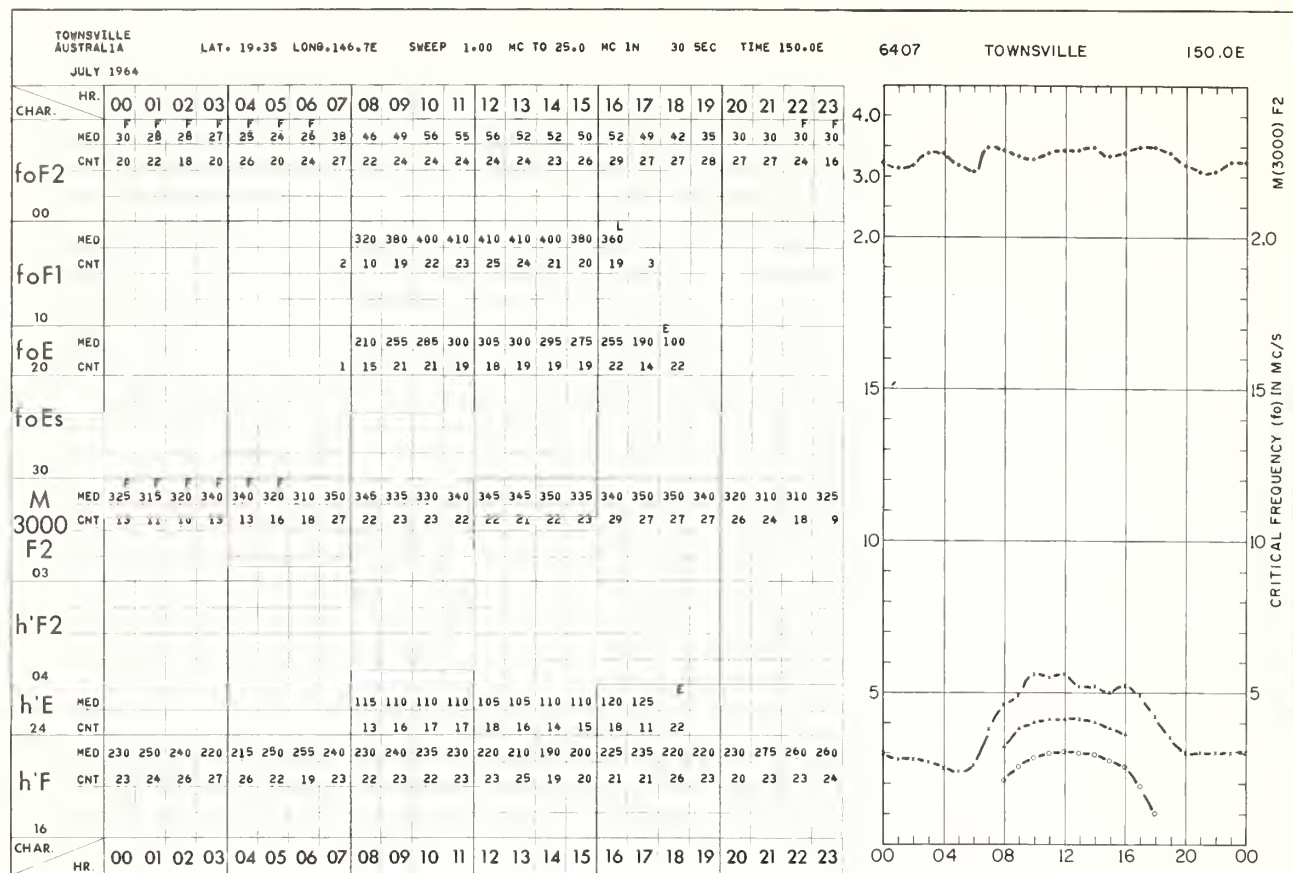


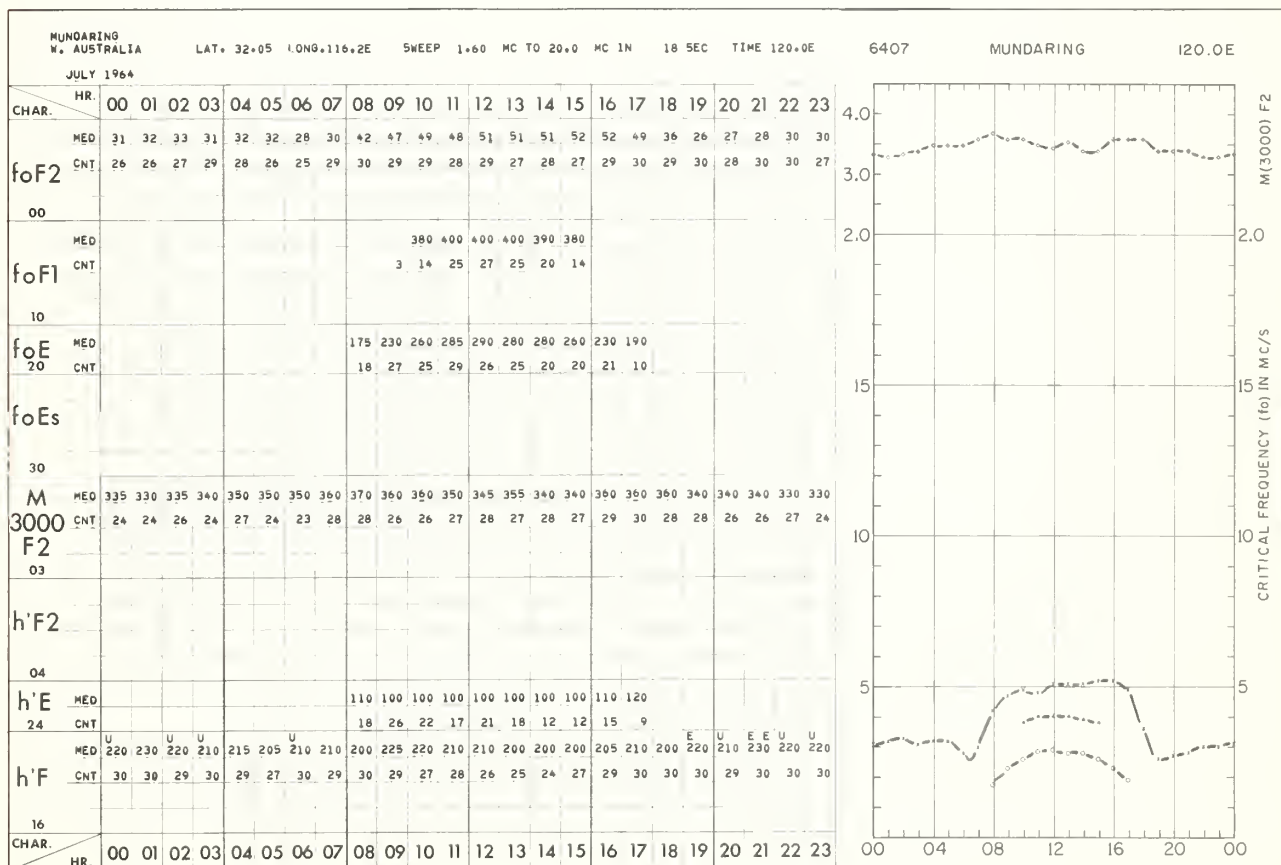
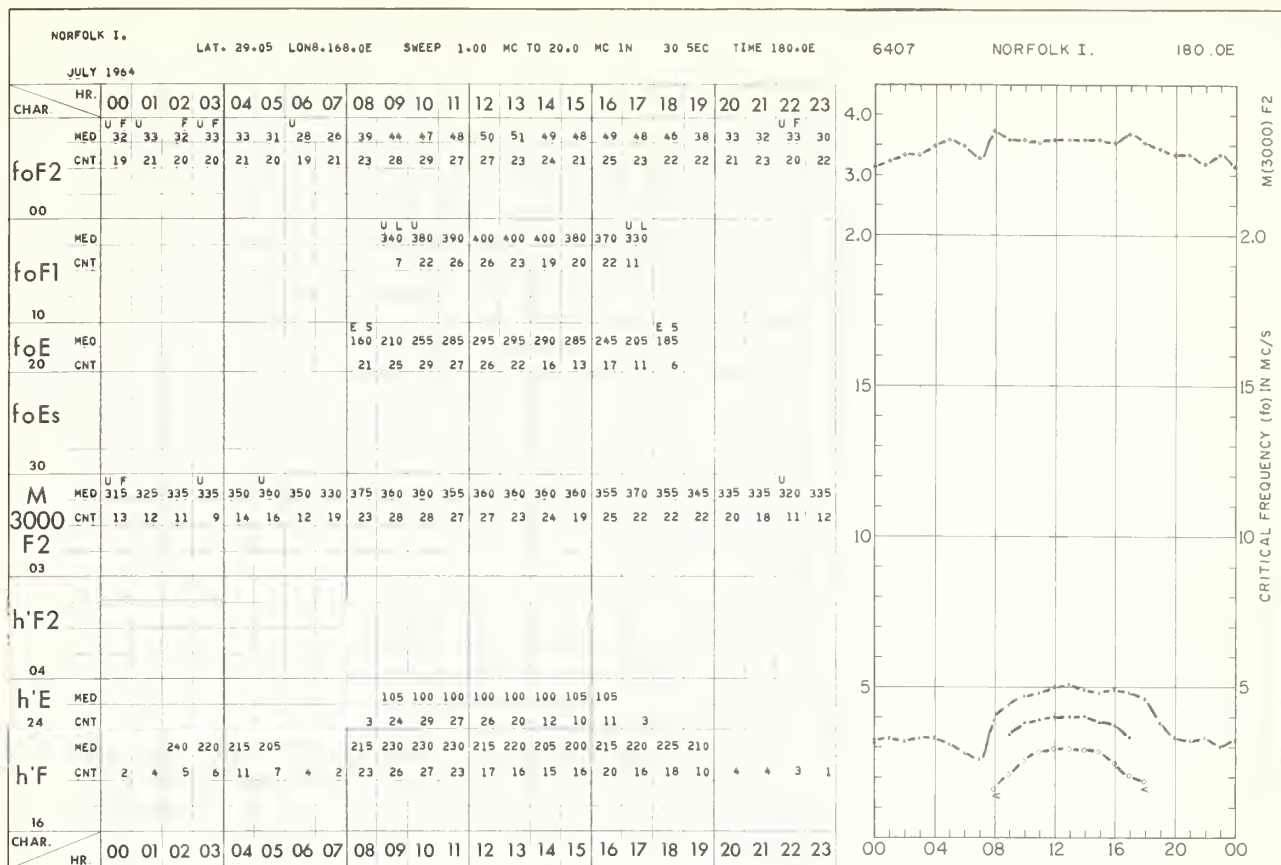


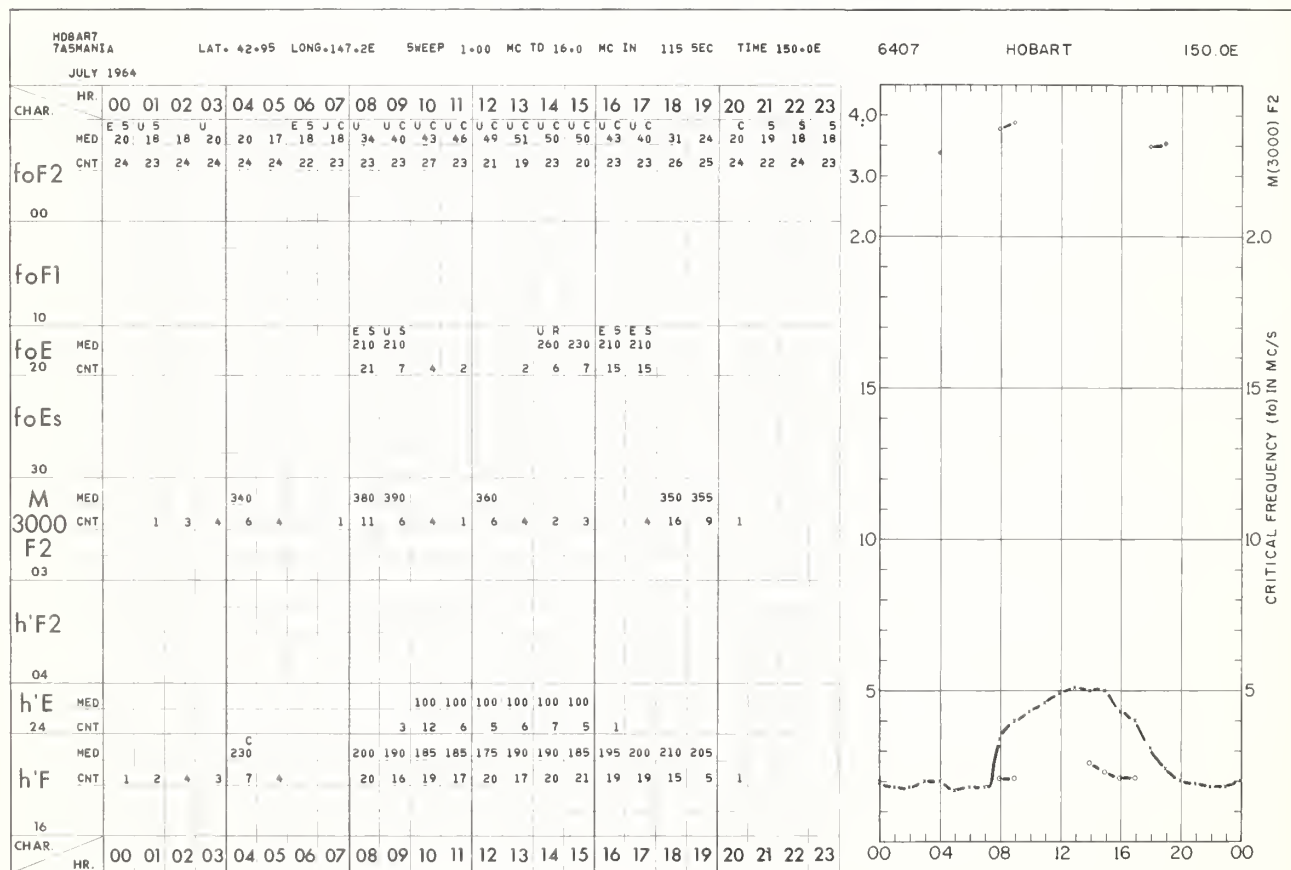
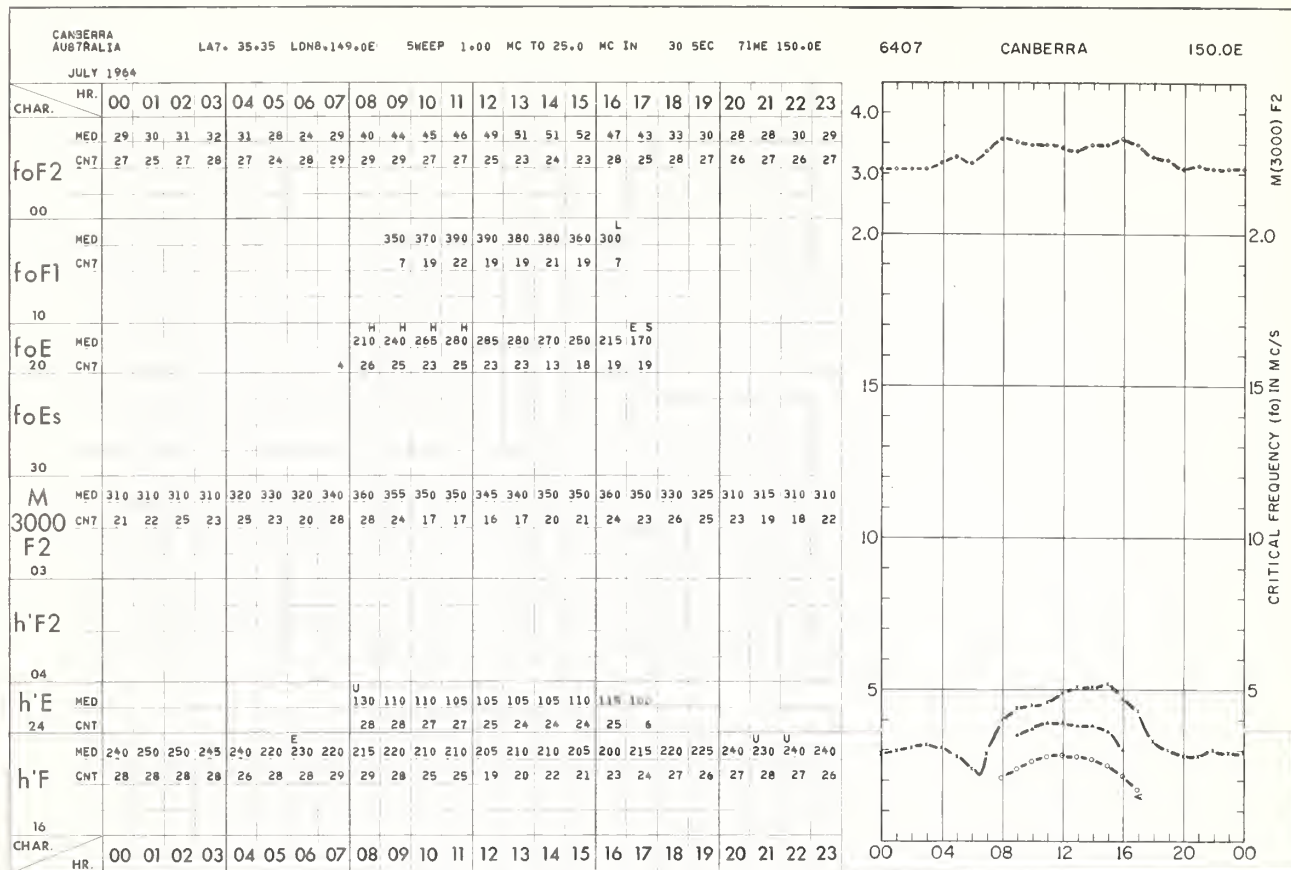


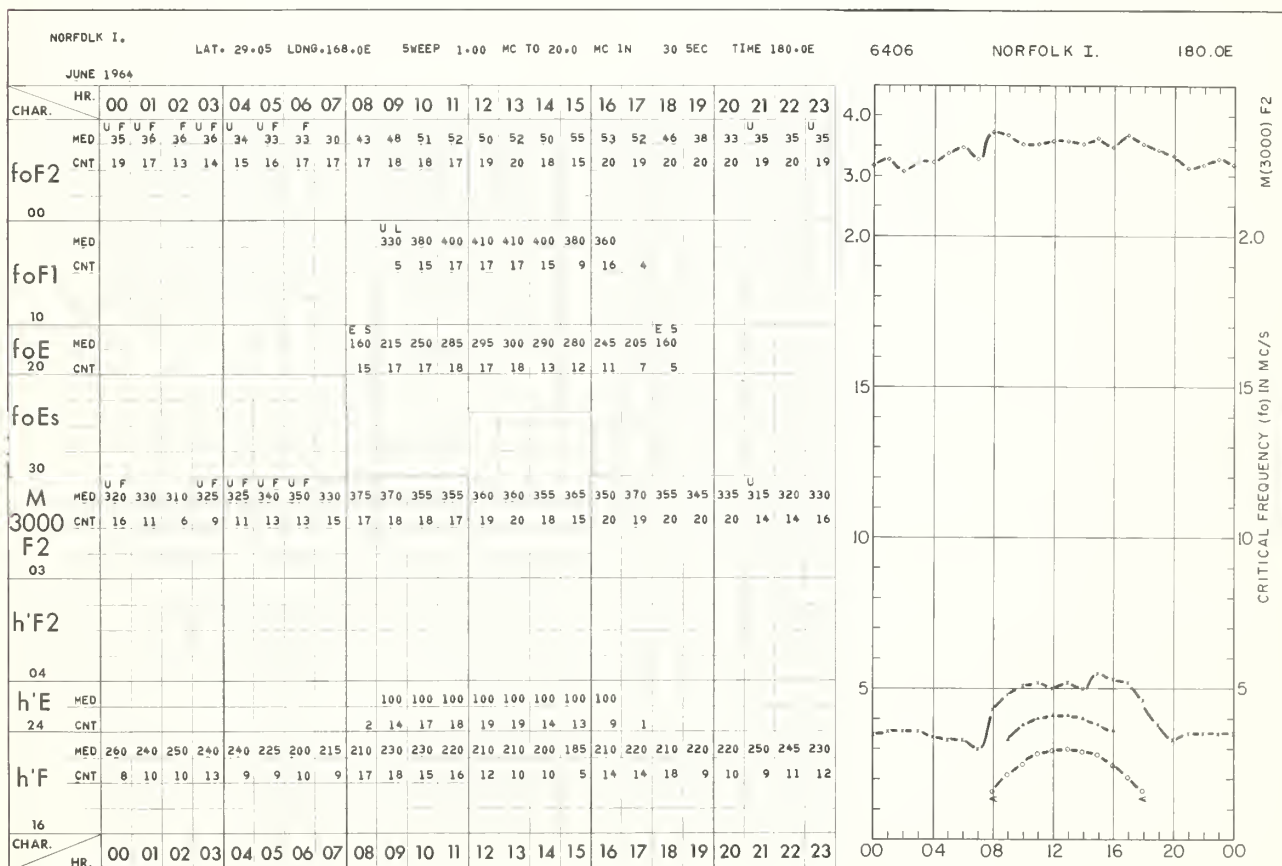
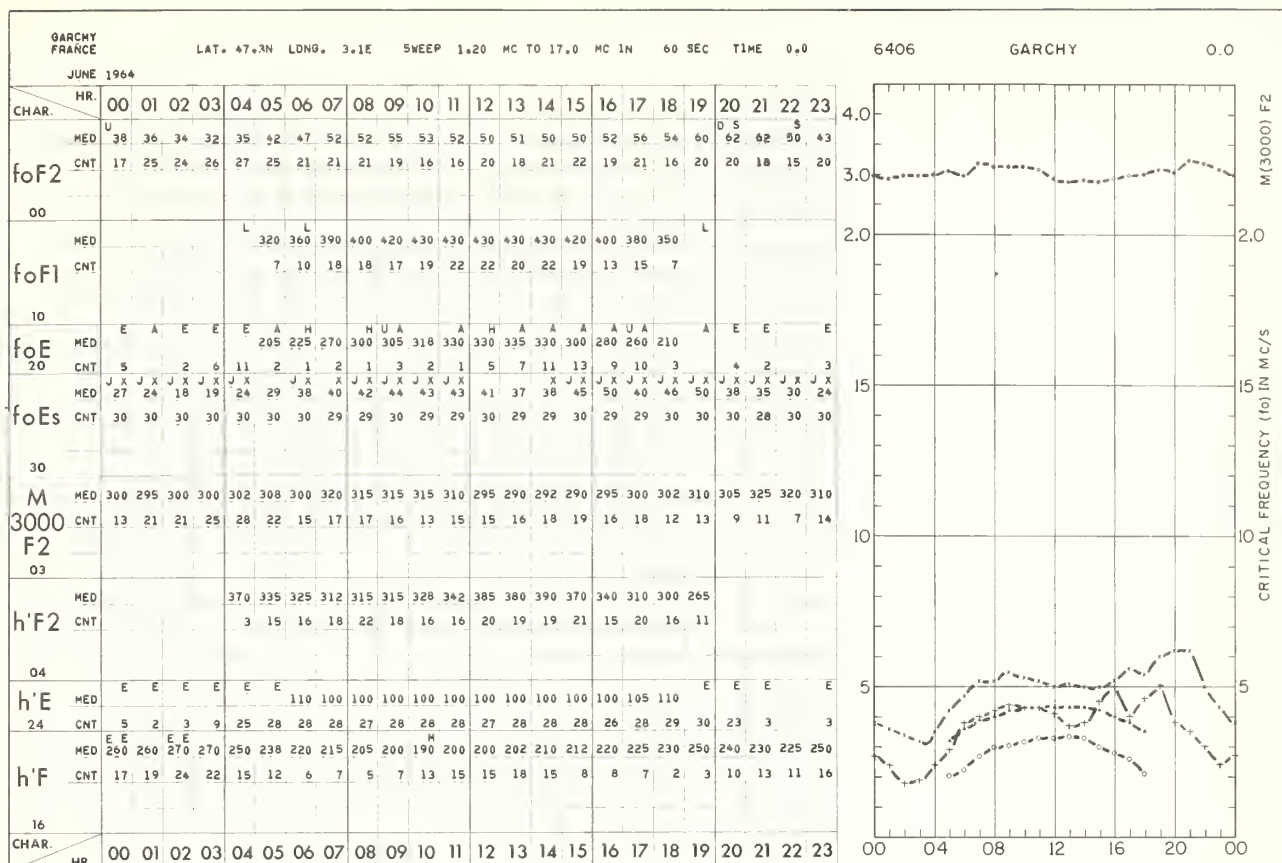


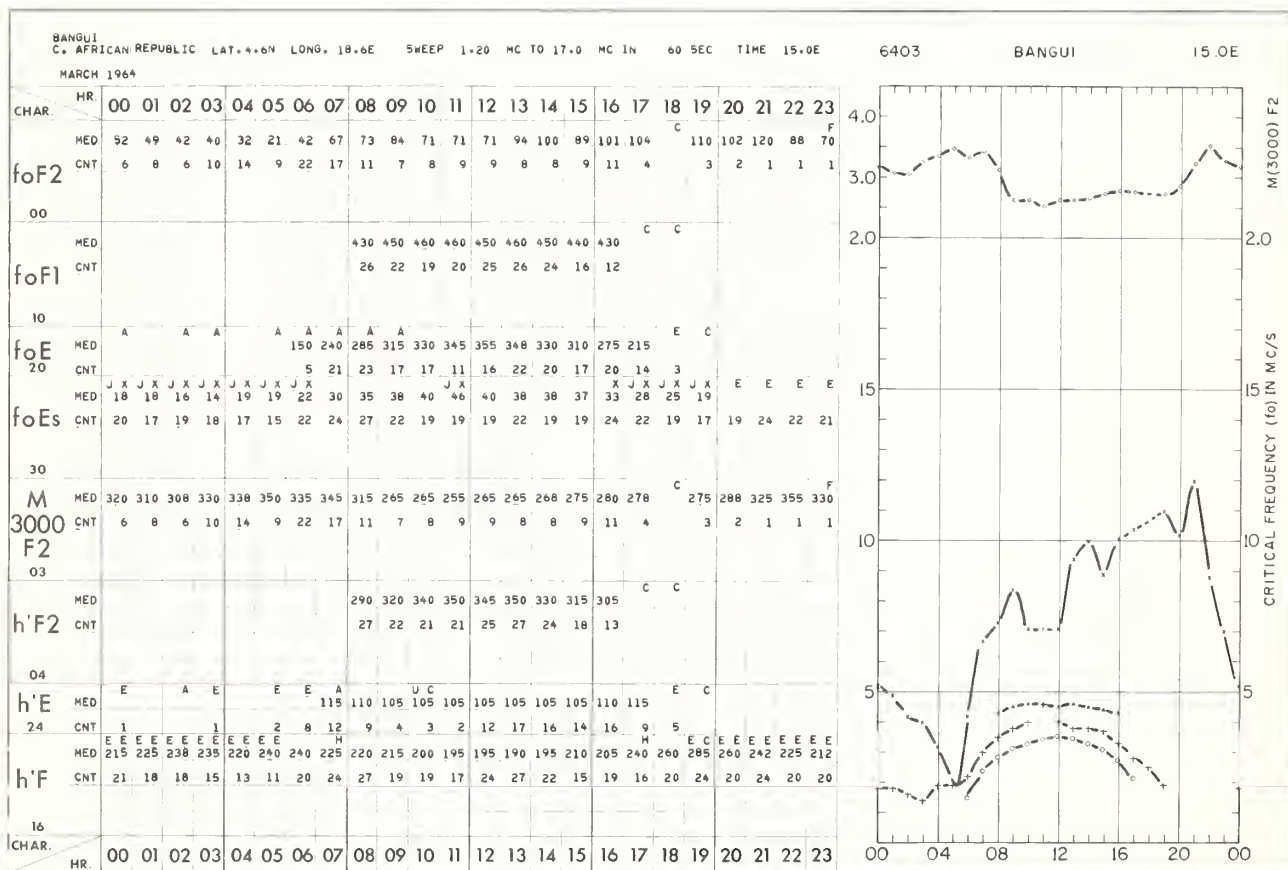
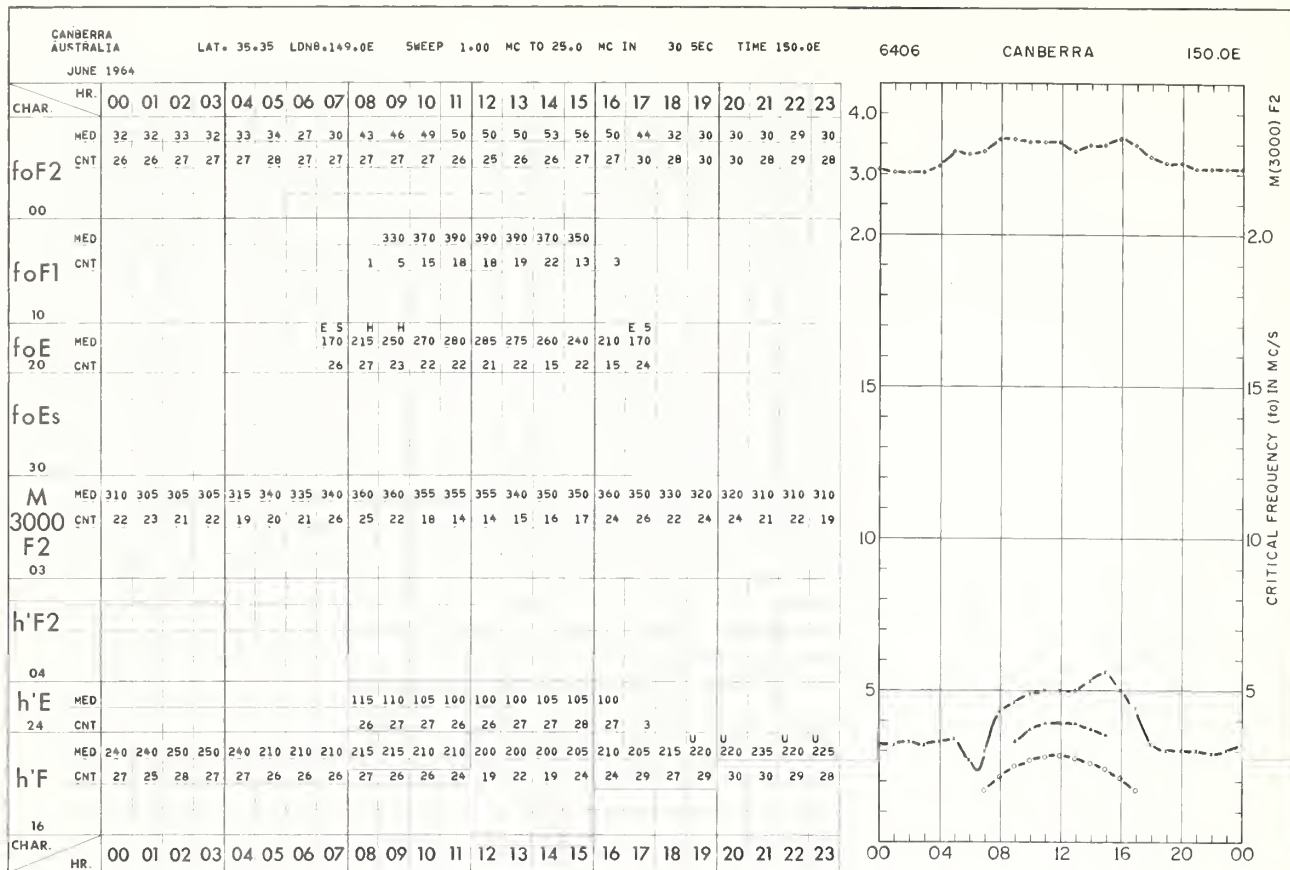


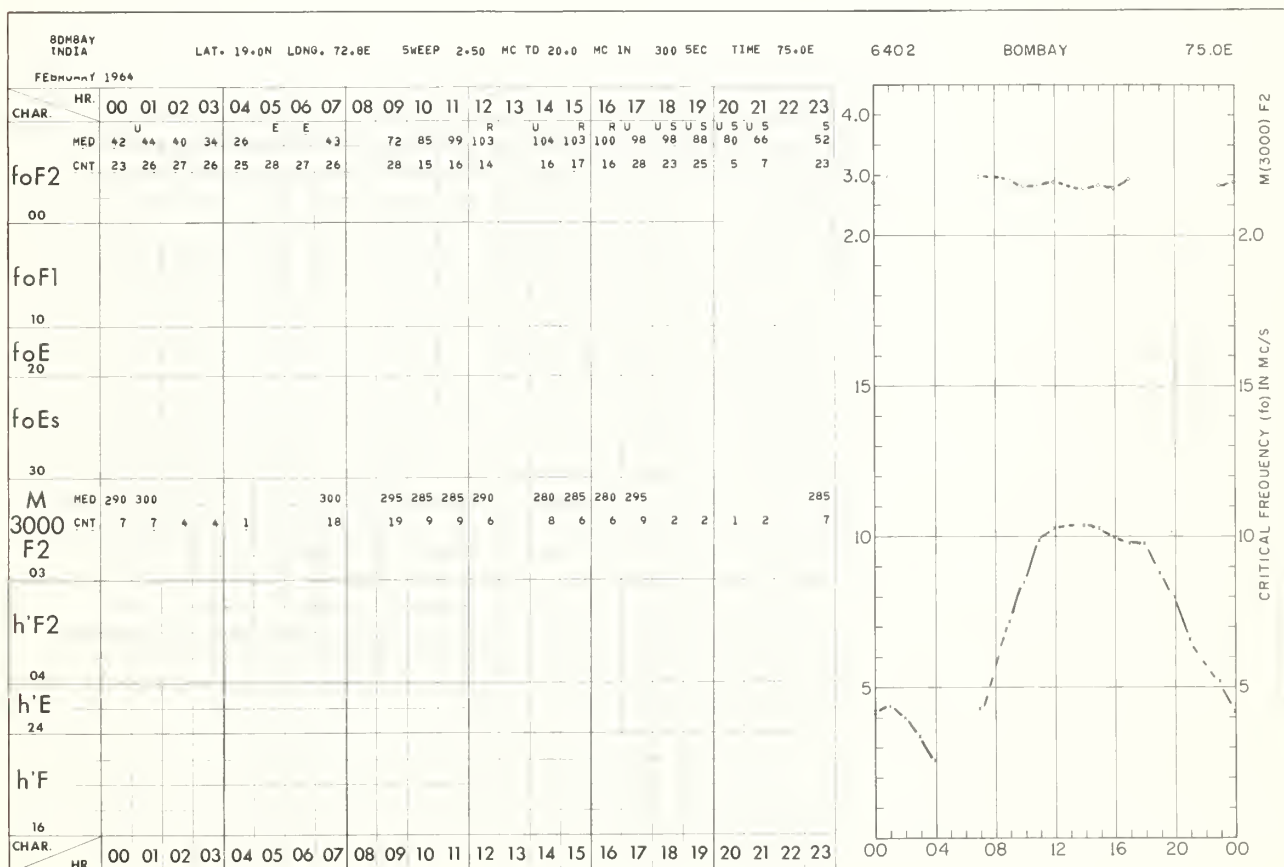
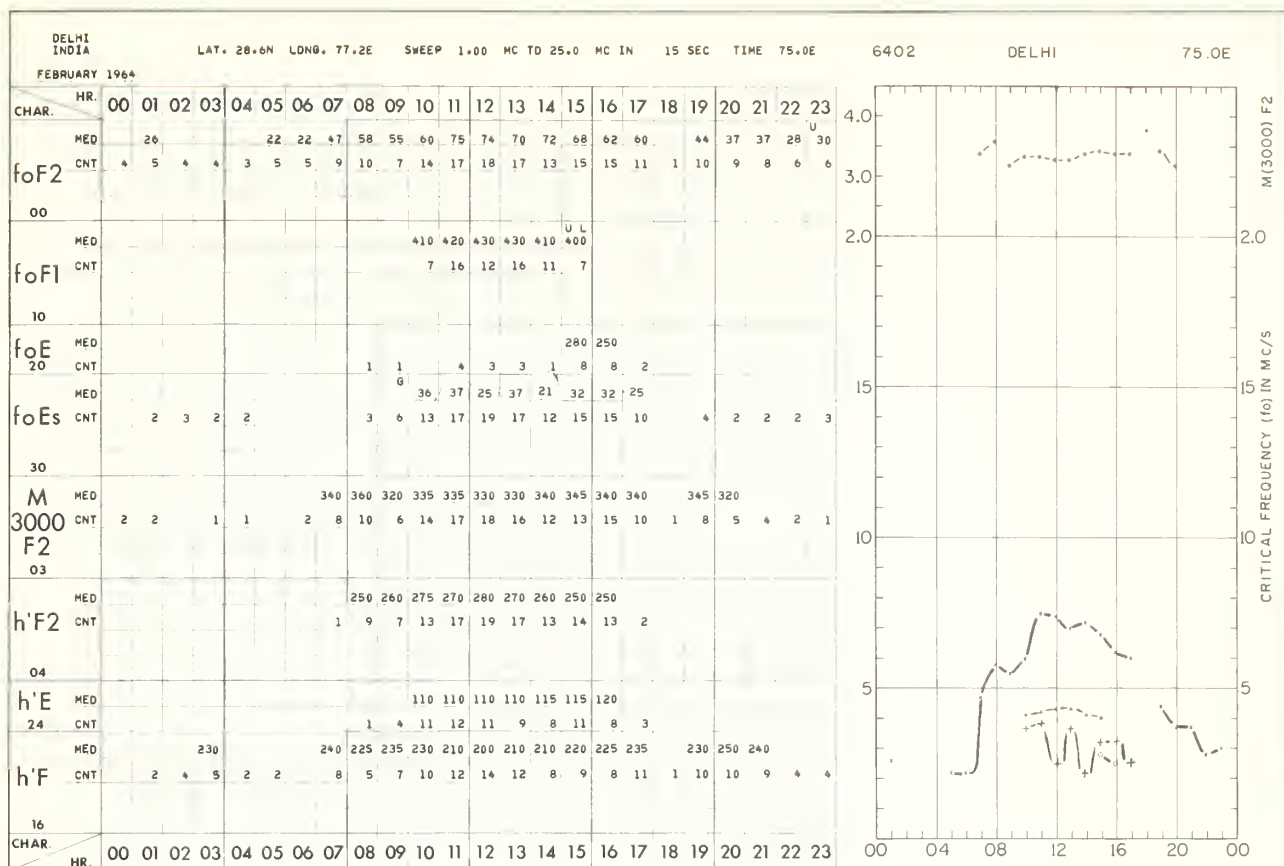


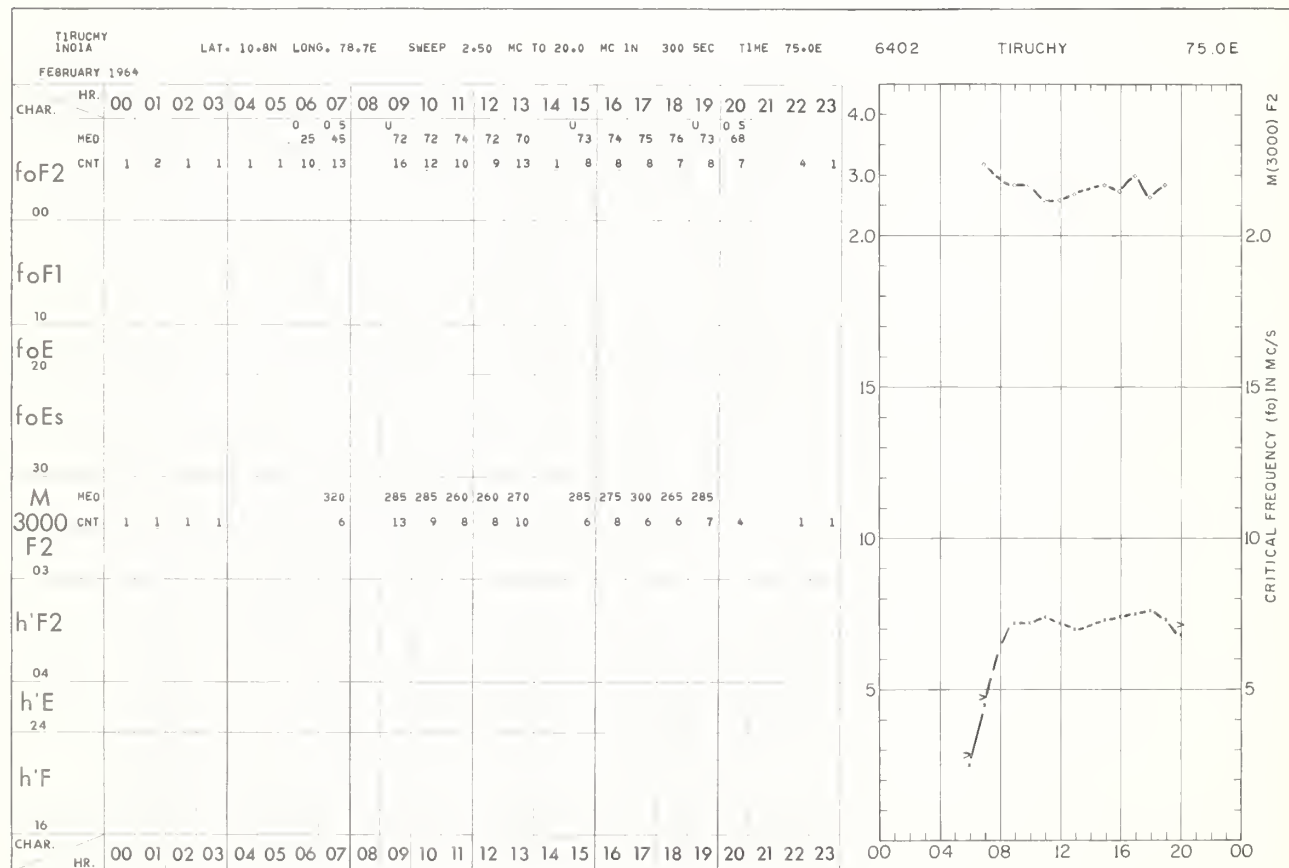
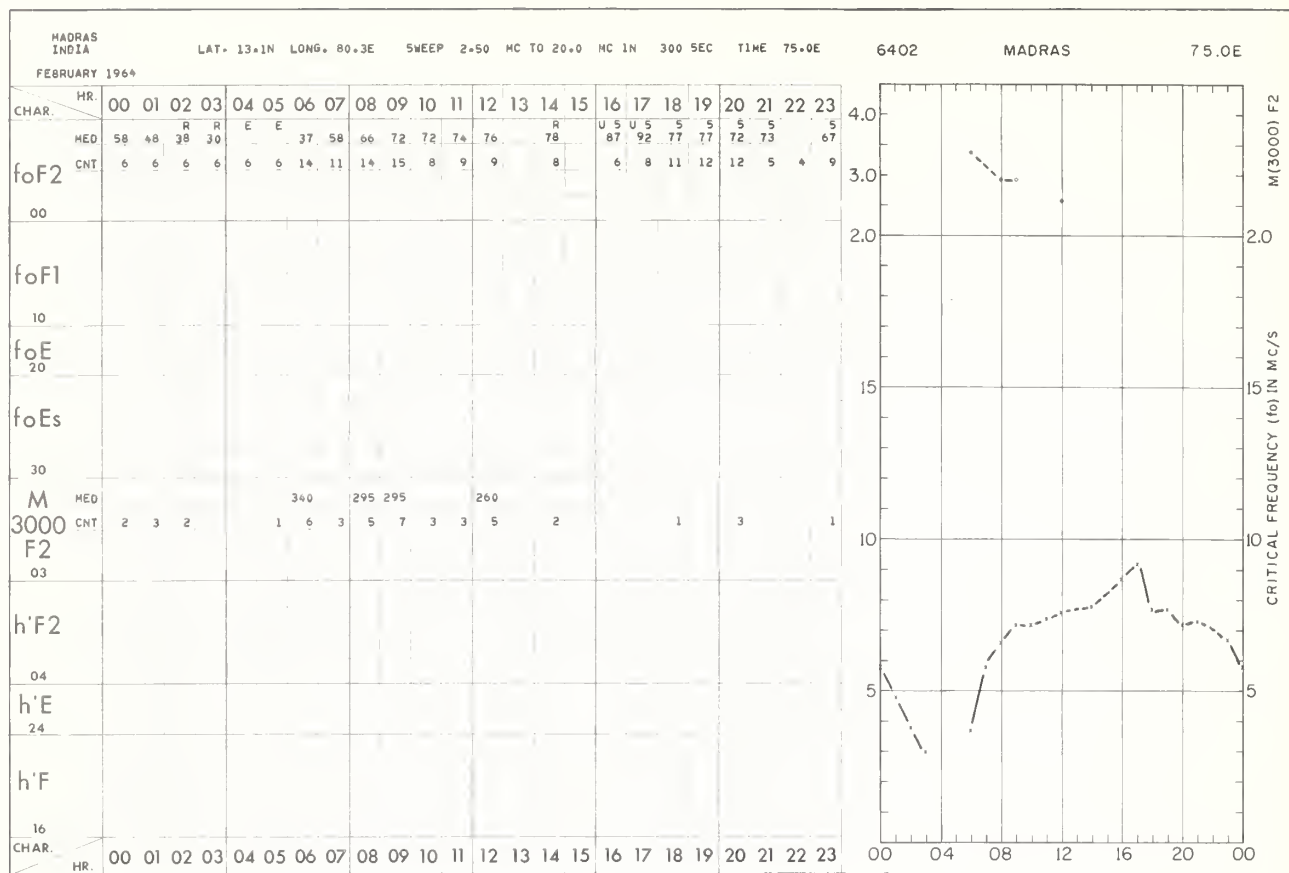


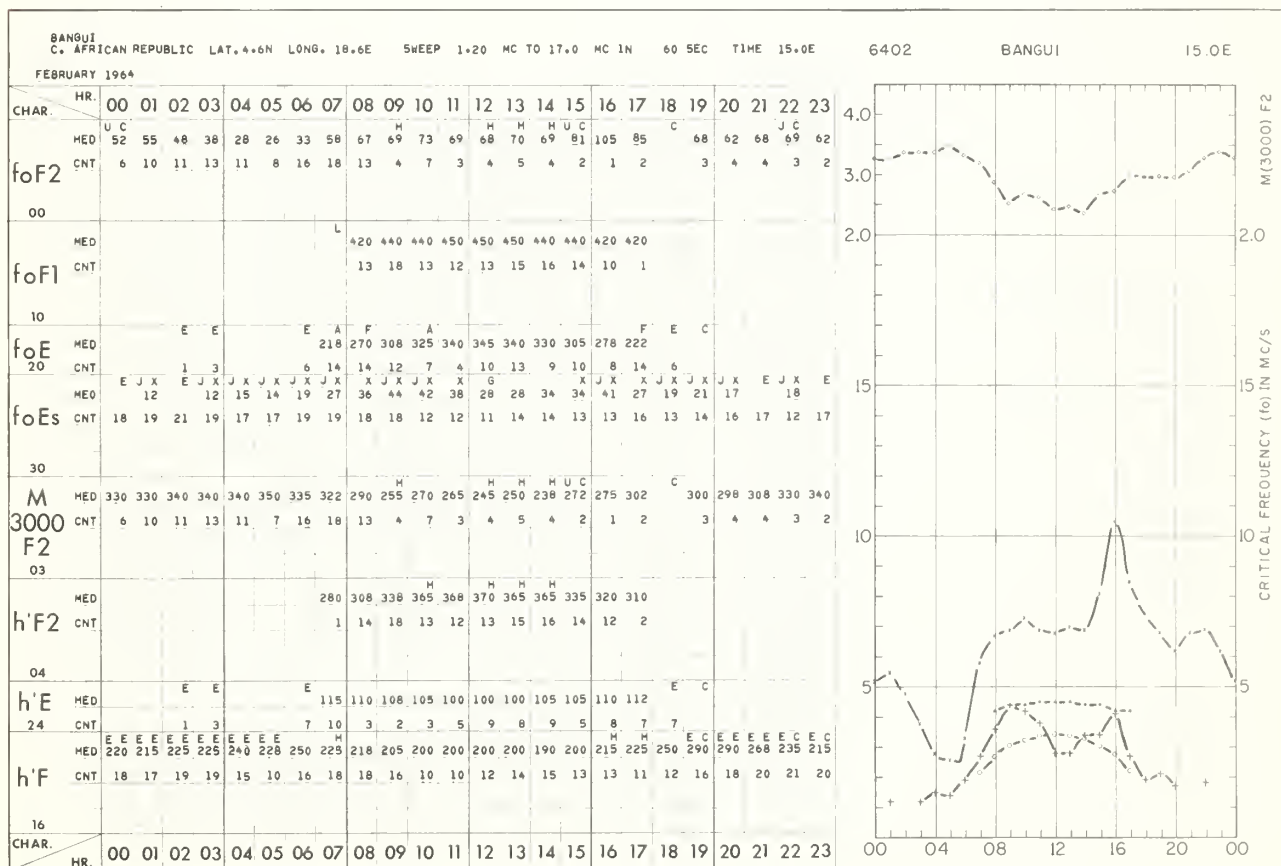
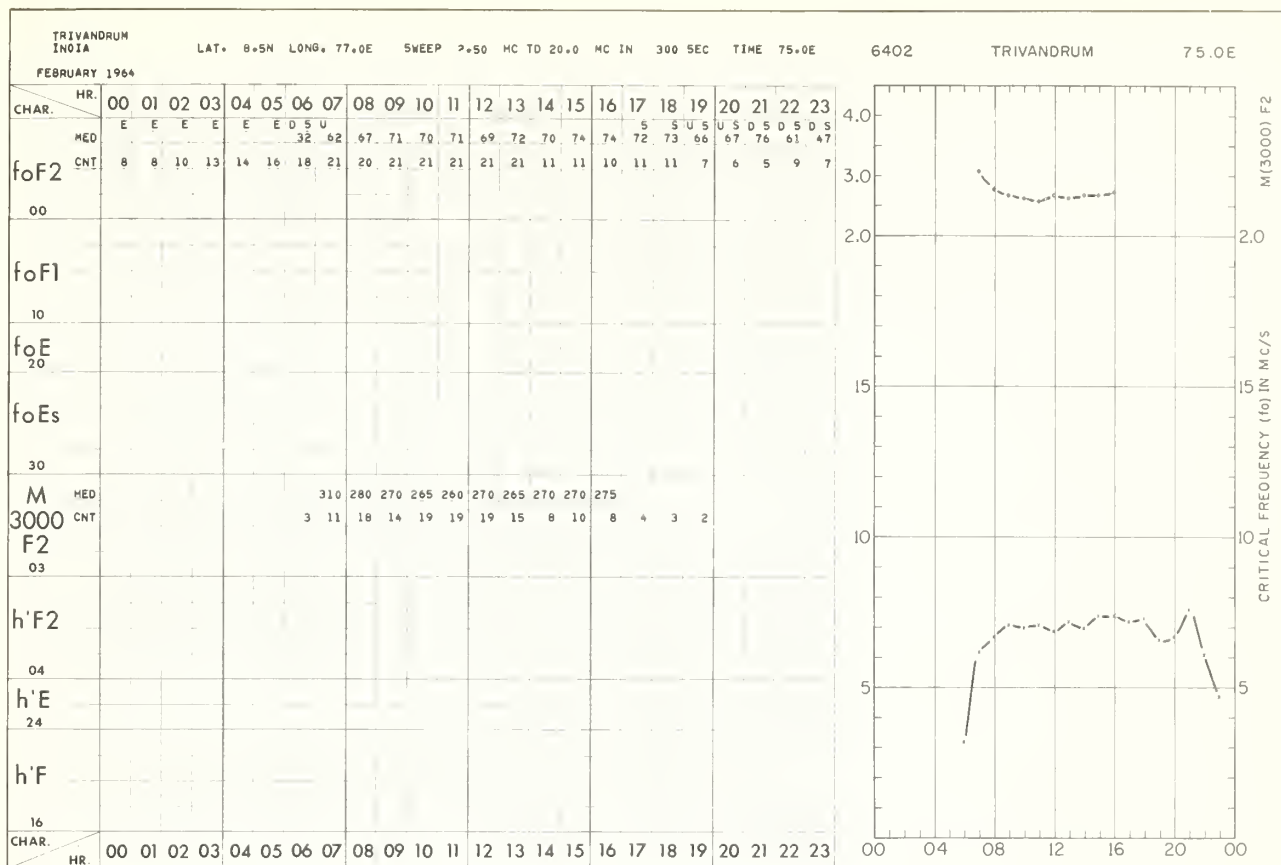


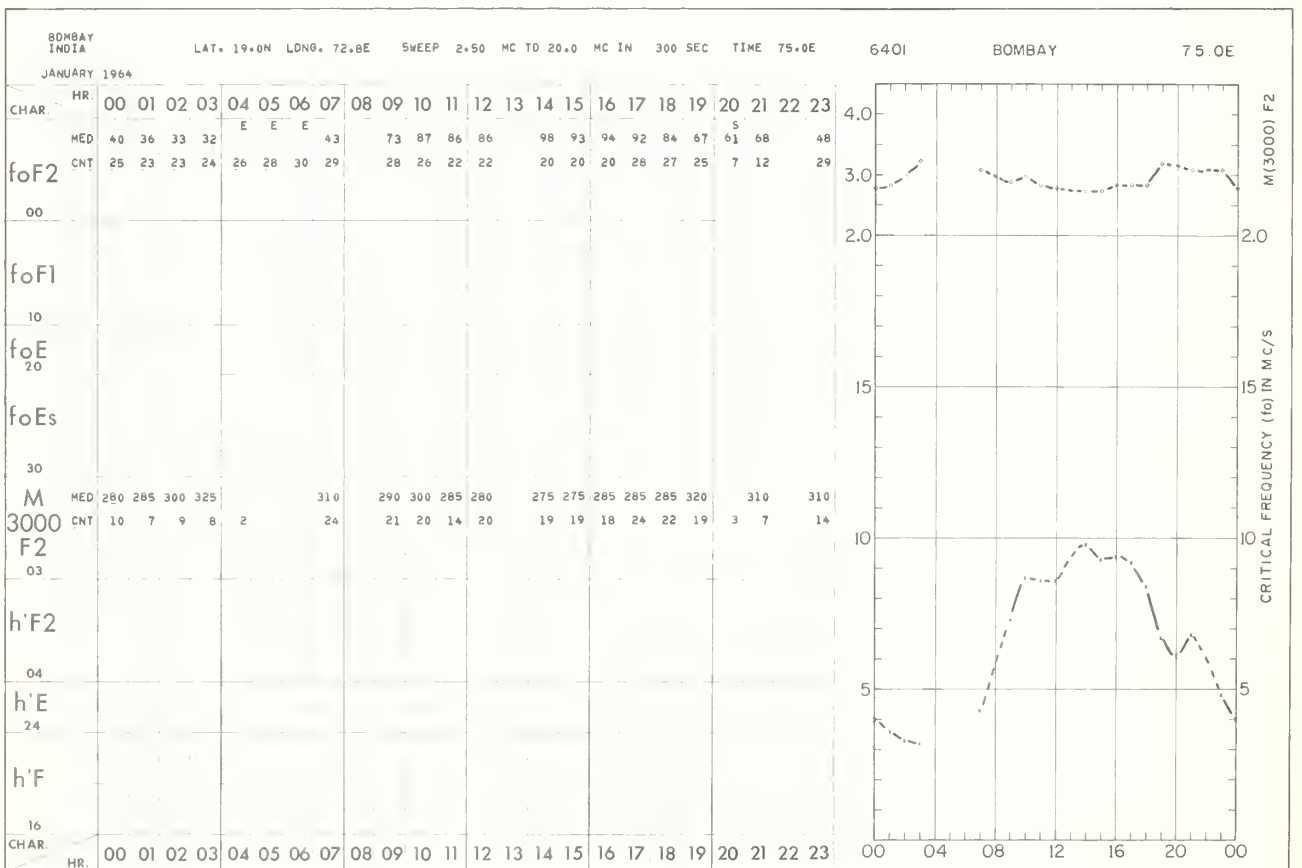
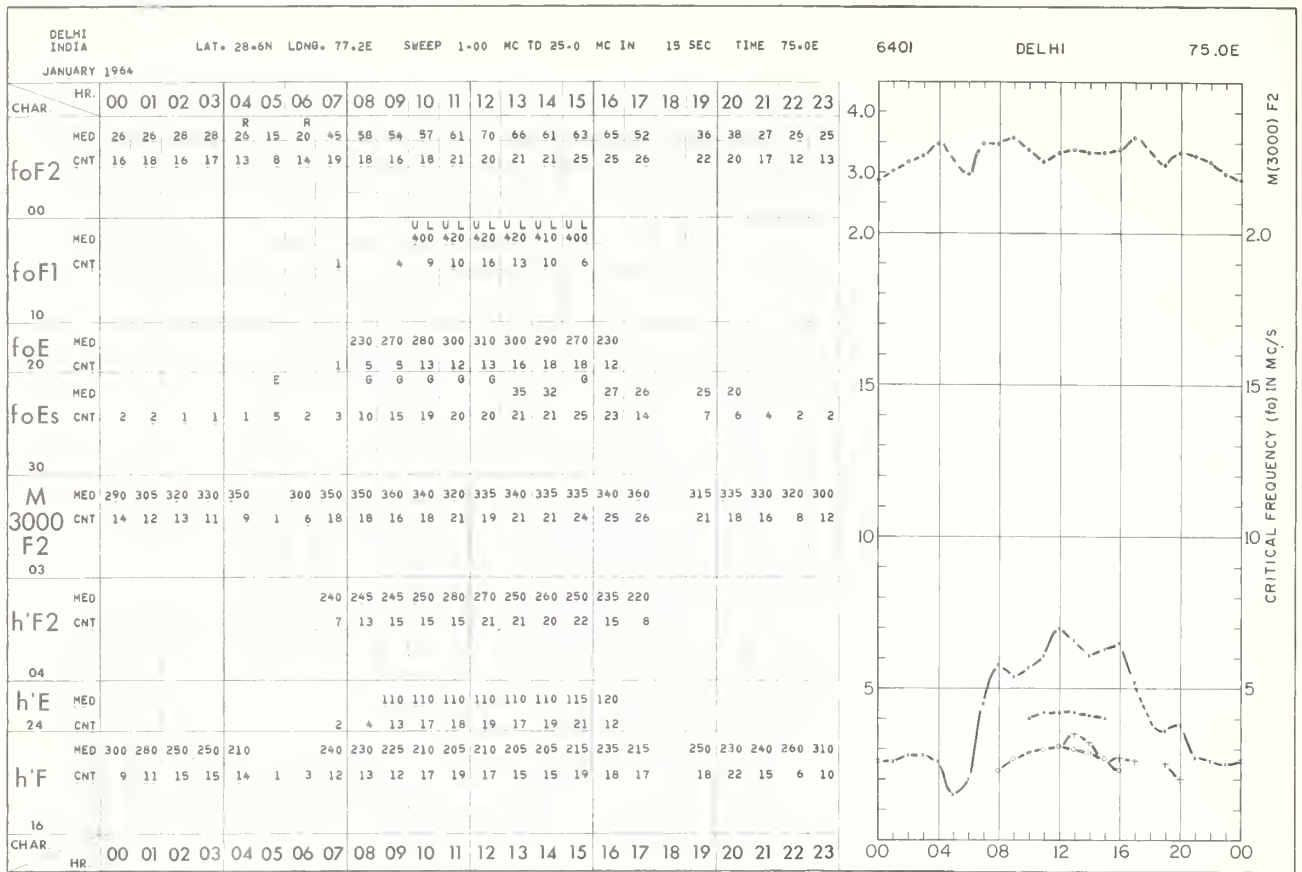


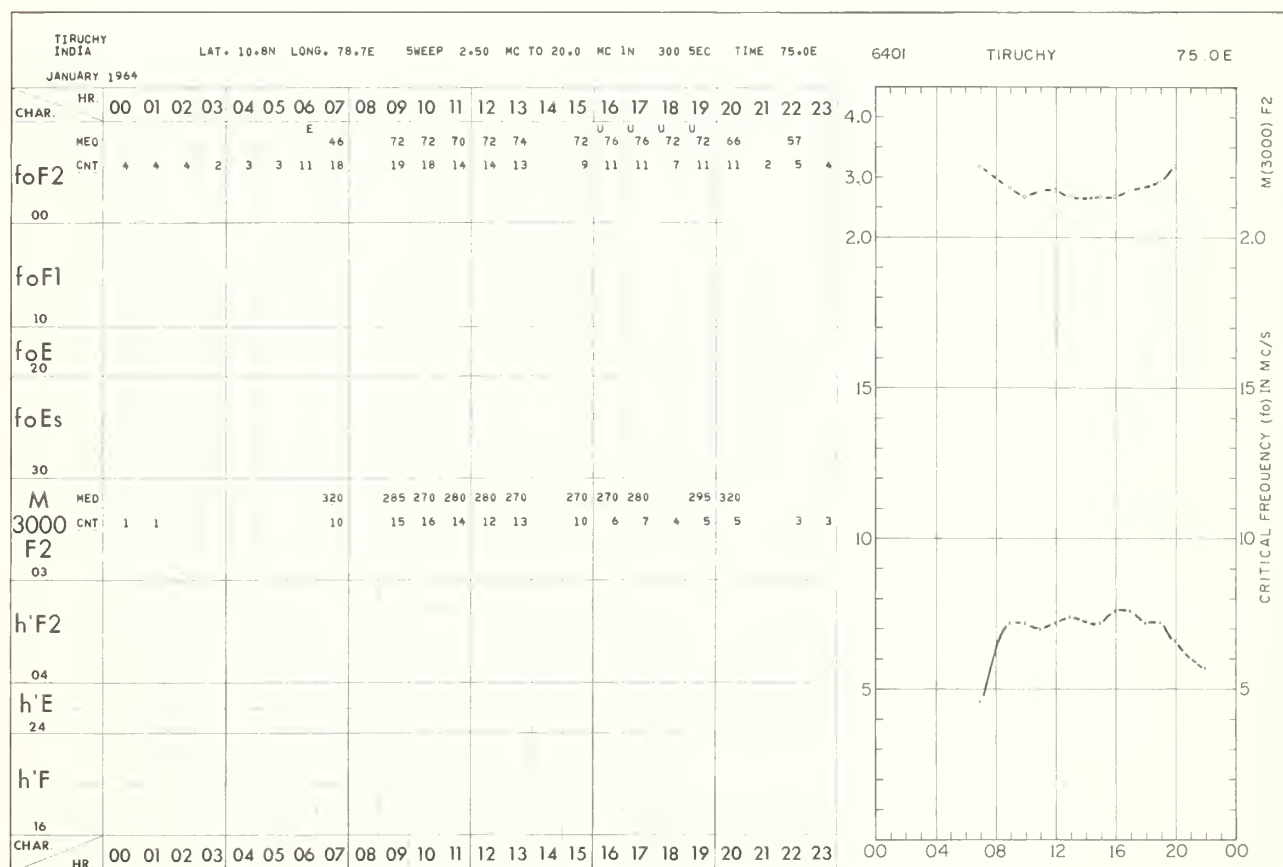
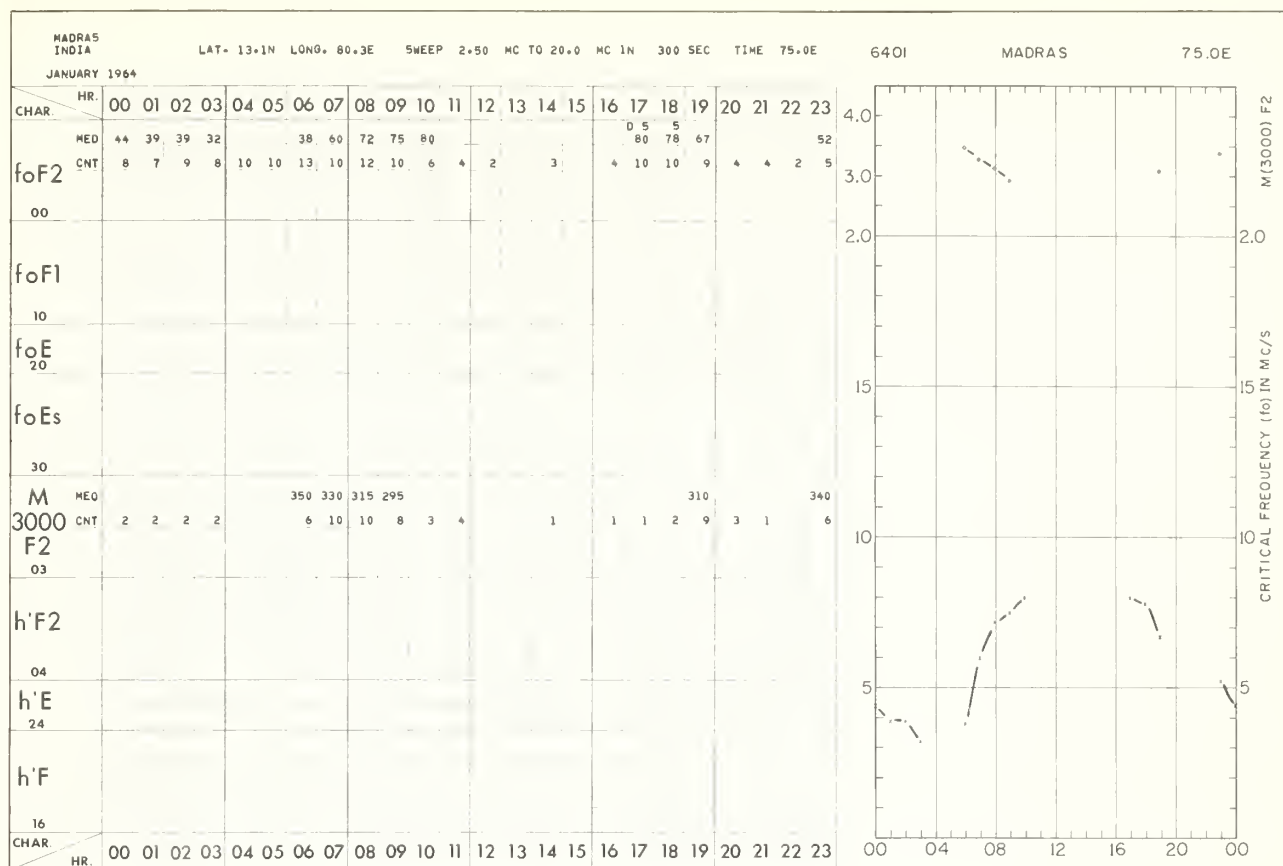


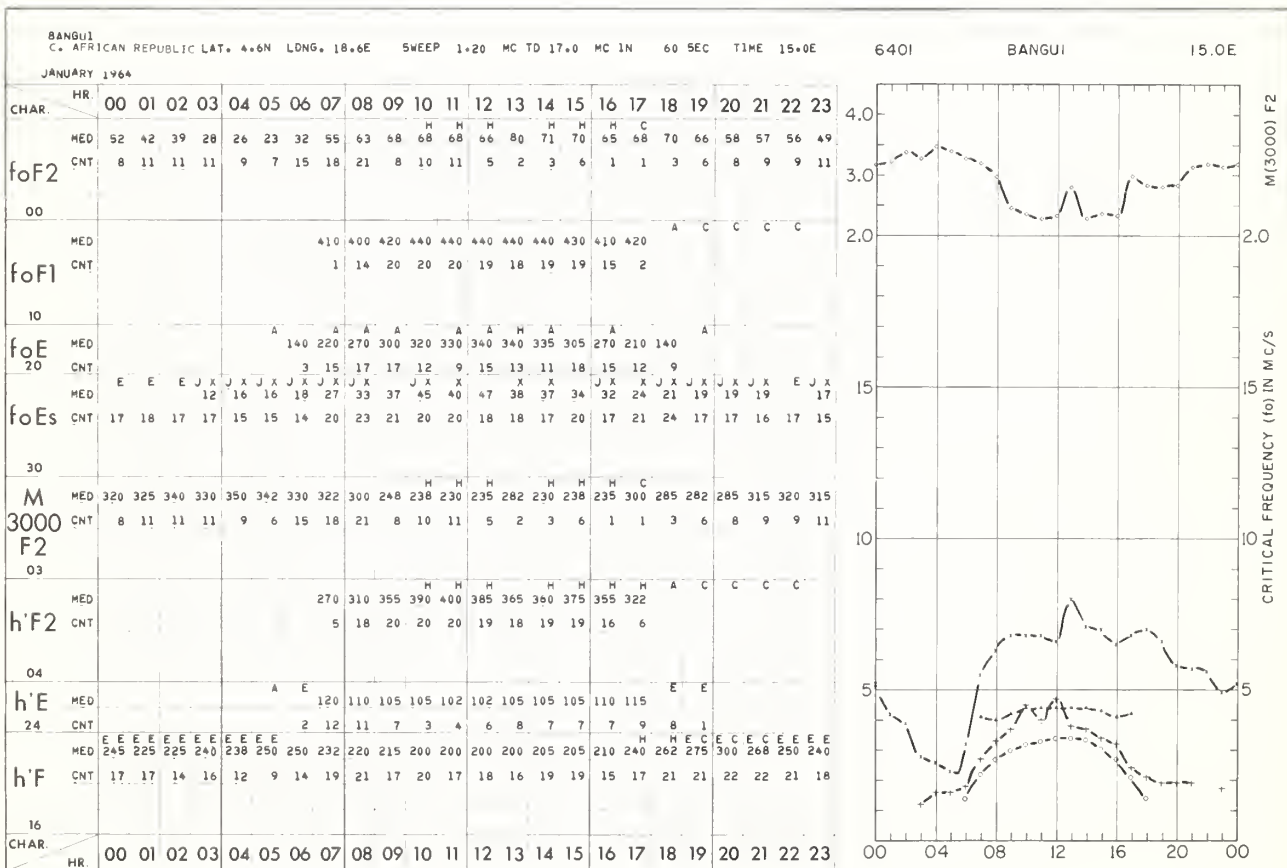
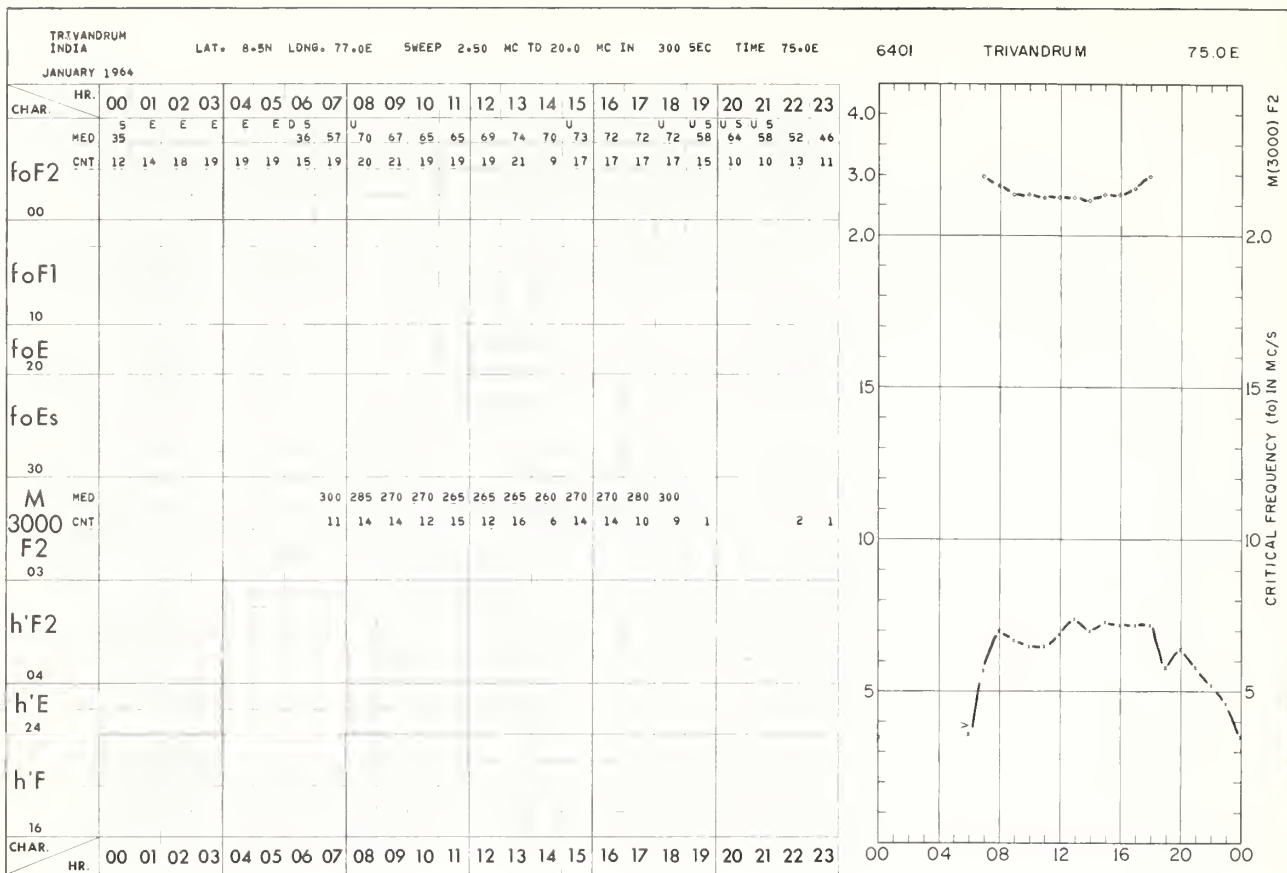












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A catalog of records and data on file at the U.S. IGY World Data Center A for Airglow and Ionosphere, Boulder Laboratories, National Bureau of Standards, Boulder, Colorado, which includes a fee schedule to cover the cost of supplying copies, is available upon request.

CRPL-F (Part A), "Ionospheric Data."

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"Ionospheric Predictions."

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